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P A R T II.
 PRACTICAL OBSERVATIONS
 ON THE
 D I S E A S E S
 WHICH PREVAIL IN
 LONG VOYAGES TO HOT COUNTRIES, &c.

S E C T. II.

OBSERVATIONS ON CONTINUED FEVERS, ESPECIALLY ON THAT VARIETY ARISING FROM A VIRULENT CONTAGION*.

THE present practice, with a very few exceptions †, forbids the use of bark in continued fevers, till such time as considerable

* Under this denomination are comprehended the Petechial, Hospital, Jail, and Ship fevers of authors.

† When the first edition of this work was published, no author in this kingdom had recommended the free use of bark in fevers, except the ingenious Dr Millar, of London. *See his Observations on the prevailing Diseases of Great Britain, 1770.*

In the summer and autumn of the year 1770, passing my time in *Roxburghshire*, during the interval of my voyages to the East Indies, I attended several persons in continued fevers; and, after cleansing the stomach and bowels, gave the bark, in the same manner, as in hot climates; and with so happy effects, that every patient soon recovered.

The same practice has been successfully followed by several Physicians, whom I could mention, whose names would give great weight, although they have not published the result of

able debility, or symptoms of putrescency come on; and then, it is said, if it be taken in proper quantities, that it will seldom fail in removing the disease. But the truth is, and I speak from attentive experience, that if it be delayed so long, it will not only happen that the patient is incapable of taking it in proper doses; but that, by this time, such dangerous symptoms supervene, such as congestions to the head, and other *viscera*, which will render the effects of the bark, even suppose the patient's stomach be able to retain it in the most liberal manner, extremely uncertain.

In another publication * I have shewn the safety and advantage of exhibiting the bark early in continued fevers, which occurred in my practice, in this kingdom. And, from 1770 to the present year 1791, I have attended about thirteen hundred patients, in all the varieties of continued fever; and do not remember that above
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their experience. Dr Lettsom and Dr Sims have also inculcated the early use of the bark, in their writings, without paying regard to intermission or remission of fever: and several other authors have adopted this practice, although they have confined it to that state of fever, which they have generically denominated *Typhus*.

* *Observations on Fevers; especially on those of the continued type; and on the Scarlet Fever, attended with ulcerated Sore Throat, &c.*

four cases have come under my care where the medicine failed, when given *early*, and *regularly* persevered in. But I must also acknowledge that the bark has failed in many instances, when I have not been called in, and consequently could not prescribe it, till that state of the disease, when authors think its exhibition safe. How far the bark might have succeeded in the unfortunate cases *, had it been given early, is impossible to determine.

It is not, however, to my experience on patients alone, to which I can appeal for the safety and advantage of giving the bark early in continued fevers: but I can affirm that, within these few years, my own life has been twice preserved by taking it largely and liberally, on the very first day of confinement in fevers; attended with such symptoms, as would have deterred many Physicians from prescribing it. And, did I think it necessary, I could adduce the testimony of several
medical

* At the Dispensary, where an accurate register has been kept, the proportional mortality, in respect to the number admitted under my care, labouring under contagious fevers, is as *one to fifteen*: but, in many of the fatal cases, the disease was too far advanced to give the least chance of recovery, before the patients were admitted.

medical gentlemen in this place, who have found equal advantage from it, when exhibited in the same manner, either in their own cases, in that of their relations, or patients.

But, in this section, I purpose to confine my observations to the means of subduing that variety of fever, which originates from virulent contagion. And when it is considered how often an infectious fever is either carried on board of ship, or generated in it; and how often the remittent fever, contracted at different harbours, becomes continual and contagious, I hope the following remarks will not be deemed foreign to the subject of this essay.

For eighteen years past having had frequent opportunities of attending the worst kinds of contagious fevers, as they have appeared in poor-houses; in persons who have contracted them on board of ships; and in the sordid and crowded habitations of the indigent; after pointing out the distinguishing symptoms, I shall briefly give a detail of the practice, which, if commenced in the beginning, seldom fails to subdue them, or, at least, to render their terminations favourable.

The continued fever from contagion, in the worst cases, is easily distinguished. The strength, from the very invasion, is prostrated; the countenance is dejected and much altered; and the eyes have a peculiar listless, and intoxicated look. Sickness, bilious vomiting, and diarrhœa, often accompany the most malignant cases; and the patients complain of giddiness, great debility, and faintness, on the least motion. Early in the disease the eyes become suffused, and look as if they were injected with a mixture of yellow and red: the skin is often mottled with a dusky rash; and frequently hemorrhages, *petechiæ*, and *vibices* make their appearance. Tremors of the hands, convulsive twitchings of the tendons, delirium, stupor, and hiccup come on; and the patients sometimes die so early as the seventh, often on the eleventh, and still more frequently on the seventeenth day*.

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* In some cases which I attended in the advanced state of the disease, during its prevalence in Newcastle and its neighbourhood, the fatal period did not happen till the twenty-first, twenty-second, and, in one instance, the twenty-eighth day of the disease. But in all such cases the fever had crept on in a slow and insidious manner.

Sometimes, indeed, the disease steals on by such slow and imperceptible degrees, that I have known those, experienced in other varieties of fever, deny that the patient ailed any thing except low spirits, till such time as stupor, convulsions, and delirium have come on; and such other malignant symptoms, as have convinced them, when too late, that the distemper was incurable. The absence of heat, and quickness of pulse, indeed, in such cases, is apt to mislead those who have no idea of fever, except it be accompanied with strong action of the vessels. But still any person, conversant with the debilitating effects of contagion, may readily ascertain the existence of the fever, by the very look of the patient; although it is not easy to convey, in adequate terms, the changed and morbid appearance of the countenance.

The continued fever, arising from virulent contagion, is also often in the beginning attended with catarrhal affections, or slight peripneumonic symptoms; which not only make the patient mistake his disease for a cold; but this feature of the complaint also often deceives the un-

unwary practitioner, who, by the use of the lancet, too frequently renders the distemper incurable.

But it is not my intention to enter minutely into the history of the disease, which is accurately described by many authors, under the names of jail, hospital, and ship fever *, I must, however, observe that it is still as frequent in large towns; that it is seldom out of Newcastle, for a whole year; and that it has been prevalent, during the winter of 1790 †, and the spring and summer of 1791, amongst the poor; and also has been introduced, frequently, into genteel families; and, sometimes, even into those of the first distinction.

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* See Sir John Pringle and Dr. Lind's works; and more especially Dr. Robertson's observations on the Ship Fever.

† This fever was generated in the poor-house of Gateshead, which is united to Newcastle by the bridge. For some time its ravages were confined chiefly to a low, ill-aired, narrow street, called Pipewell-gate. In September it made its appearance in Newcastle; and at first the contagion was easily traced from Pipewell-gate, and afterwards from one house to another. Of this fever 188 poor persons were admitted to the Newcastle Dispensary. The poor ill of the fever in Gateshead were attended by the parochial Surgeon, and therefore are not included.

In order to subdue this fever, or to prevent its malignity, no time is to be lost: upon the very invasion, an emetic of ipecacuanha wine, or the powder, is to be given: and, as soon as the vomiting is over, immediate recourse is to be had to the bark, in the form of the decoction, N^o. 10, taking from two to three ounces every hour and a half, or every two hours; adding to every alternate dose from one to two drams of fine powdered bark.

An opiate also, when it agrees, ought to be given every night at bed-time, in a sufficient dose to procure rest. In great watchfulness I have found it to be the best plan, to give forty, and sometimes fifty or sixty drops of tincture of opium to the patient, at his usual hour of going to rest; and to repeat twenty-five drops more, in an hour's time if necessary. But, in general, from twenty-five to thirty drops will be sufficient to begin with. The additions usually made to opium, when given to procure sleep, I consider of little importance. When there is no sickness, I generally give it in a draught with cinnamon water, and from forty to sixty drops of antimonial

timonial wine *; and, when there is a diarrhœa, I most commonly prescribe a draught with ten or more grains of Dover's powder †, adding to it a sufficient quantity of tincture of opium: the reason of this last addition is obvious; for a full dose of Dover's powder contains so much ipecacuanha, as often excites vomiting.

When the irritability of stomach is great, which is often the case, in contagious fevers, it is proper to give opium, and the compound tincture of bark, or colombo, in a saline draught, in the state of effervescence, and to repeat it frequently: and, when the sickness is allayed, to have recourse to the pleasant preparations of the bark, N^o. 7, 8, 9; still, however, adding the powder, as soon as the patient can be brought to digest it.

In the advanced state of the fever, when great debility prevails, it is of consequence to add snake root to the bark, as in N^o. 12, or the volatile alkali, as in the prescription N^o. 13. And, in some cases of great sinking, I have, with advantage, added one

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or

* Vinum Antimonii, Ph. Lond.

† Pulv. Ipecacuanhæ Comp. Ph. Lond.

or two tea-spoonfuls of æther* occasionally to a dose of the decoction of bark.

When tremors and convulsive twitchings of the muscles prevent the patient from getting rest, besides the use of opium at night, it is proper to give it in small doses along with the bark in the day time; as in the prescription N^o. 14. When opium agrees with the patient, and allays spasmodic affections and delirium, it ought to be continued: but, when there is great determination to the head, it ought not to be pushed too far; and, I cannot help observing, that I have seen the most serious consequences arise from the intemperate use of this medicine, in the latter stages of fevers, in the hands of the followers of a certain speculative theorist.

During the use of the bark, it is proper to keep the bowels regular, either by clysters, or the occasional use of rhubarb: but when a profuse diarrhœa happens, which is a most dangerous symptom in contagious fevers, it ought to be moderated by absorbents given in a large dose; and by the use of the warmer kinds of opiates, such as the *confectio opiata* of the London Dispensatory. The

* Æther Vitriolicus, Ph. Lond.

The hiccup, which is a very unpleasant and often a dangerous symptom, is most effectually mitigated by opium and æther, in the form N^o. 15, together with the application of a blister to the pit of the stomach. Musk, in this country, probably from adulteration, has generally disappointed my expectations, even when given in the largest doses.

Blister I have found of little use in the beginning of contagious fevers, except when complicated with catarrh, or peripneumonic stitches; but, in the advanced state, they are very serviceable in relieving the head; especially when applied largely to each parietal bone.

When the pulse is low, the strength of the patient must be supported from the beginning with wine, porter, or ale; chicken broth; and beef tea*. But, during

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* In several states of fever, acescent drinks and nutriment are more proper, and better relished by the sick, than animal broths. But in fevers proceeding from virulent contagion, and attended with great debility, broths are not only taken with pleasure by the patient, if given early; but are absolutely necessary to support the strength. And, however contrary it may be to theory, when made of fresh meat and cleared of all fat, they, along with the use of wine and bark, are powerful resistors of putrefaction. Upon such a diet, and course of medicine, the discharges of the bowels soon lose all offensive fetor.

the first days, if the pulse be firm, the regimen should be temperate, though cordial: for I have seen great disadvantages arise from giving wine too freely in the beginning. From this, I would not have it understood, that I am an enemy to wine. Far from it. I think wine; malt liquor; spirits diluted; and punch, are indispensibly requisite in the low state of this fever. I have often been obliged to increase claret, and sometimes even port wine, to the quantity of two bottles in the twenty-four hours; and have always persevered in the free use of wine, when it raised the pulse, disposed to rest, and diminished the delirium. But, on the other hand, if the symptoms increase upon the free use of wine; if the patient become more restless, furious or delirious, pushing wine to a considerable extent, has all the disadvantages which attend opium, in large doses, when there is much determination to the head; and, therefore, it ought only to be given in moderation, to support the powers of life; and not to heat the system. But, if the bark be immediately commenced with, there will be no necessity
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to give much wine, during the first days of the fever; and seldom occasion, afterwards, to exceed one pint of port, or one bottle of claret in the twenty-four hours.

During the course of contagious fevers, the patient's linen, and bed-clothes should be changed frequently, and fresh air should be freely admitted. His face and hands should be washed with cold water, every morning; and his feet immersed in warm water every evening. And when he is too weak to sit up, and is affected with stupor, and delirium, I have seen considerable advantage, from fomenting the extremities with flannels wrung out of hot water, and vinegar; at the same time bathing the face and temples, with cold water, mixed with a little brandy.

When the fever is suppressed by the use of the bark, there still remains, in most patients, a tendency to relapse; and, therefore, it is indispensably necessary to continue the medicine, to, at least, six drams in the twenty-four hours, by way of security, for ten or fourteen days longer.

In order to illustrate the practice, I have followed in this variety of fever; which is essentially the same, in every part
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of the world, I shall insert a few histories of the disease, as it appeared, at Newcastle, in the year 1791: and would recommend the same management to be instantly adopted, in all the malignant continued fevers, in the East Indies; paying attention, at the same time, to remove corrupted bilious humours from the first passages.

C A S E I.

A GENTLEMAN aged 47, after being much exposed to contagion, was, on the 26th of January 1791, seized with chillness; head-ach; universal lassitude; and debility. At bed-time he immersed his feet in hot water; drank some warm gruel; and perspired in the night: but he had no composed sleep; found his head confused; and was constantly and suddenly awaked by phantoms.

On the day following his head-ach and languor continued. His pulse was not accelerated: he had no appetite, and passed the following night in a restless state.

On Friday the 28th, during the whole day, he was harraressed with head-ach; chillness:

chilness; great oppression; puffing of the stomach and bowels; and had a diarrhœa. He was obliged to get up, during the night, in the exercise of his profession; and, if possible, was resolved by every mental exertion to combat his complaint.

On Saturday the 29th, he was no better; and, being engaged, he sat up the whole of the night with a young lady, in the last stage of the fever.

On Sunday morning the 30th, he was seized with shivering, vomiting, and increased head-ach. His eyes now became suffused, and impatient of the light; and he had such a degree of muscular debility; giddiness; and faintness; that he was obliged to take to his bed, before mid-day. After the operation of an emetic, he took four ounces of the decoction of bark with tincture of colombo, and repeated the same quantity every hour and a half, with one dram of the powder of bark in every alternate dose.

31. He passed last night in a restless state; had frequent twitchings and startings of the muscles in various parts of the body; his ideas were, at times, confused; and he had now and then flashes of light
before

before his eyes. He however persevered regularly in the decoction and powder of the bark; and in the morning increased the last to two drams for a dose.

Feb. 1. He still had a restless night, and whenever he shut his eyes, notwithstanding he had taken an opiate, he saw strange objects; and was often troubled with convulsive twitchings of the muscles of the legs, arms, and shoulders. His urine continued pale; but he persevered regularly in the use of the bark, taking a pint and a half of the decoction, and two ounces of the powder, in twenty-four hours; which sat easy on his stomach; and produced an equal warm perspiration. At bed-time, after bathing his feet in warm water, he took sixty drops of tincture of opium.

2d. He rested four hours last night. In the morning his urine was turbid; his skin soft and moist. His head-ach, giddiness, and the twitchings of the muscles were still troublesome; but he continued through the greatest part of the day in an equable warm sweat. He persevered in the use of the decoction; and took one-sixth part of an ounce of fine powdered bark every three hours. And, as the quickness of his pulse
had

had now subsided considerably, he drank about a bottle of claret, every twenty-four hours.

For the three following days, he had little fever; slept better at night; but his urine continued pale; and he was very feeble and oppressed, except after taking wine and bark, which always gave fresh spirits. He still persevered in the bark, taking twelve drams of the powder, and a pint and a half of the decoction, every twenty-four hours.

On the fifth of February, in the afternoon, though very weak, he ventured to be carried out in a chair to visit a gentleman, who was taken ill of the same fever; and who was anxious to have his advice.

For the three following days, he continued low, feeble, and at times faint: but he was obliged to be carried abroad daily.

On the 9th of February, his urine was again turbid; but, in the afternoon, became pale. His pulse fluctuated from 90 to 100; and he was continually low and oppressed, except after taking bark, wine, or nutriment.

From this time to the eighteenth, he found a disposition in the fever to recur,
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notwithstanding he still took the bark, to near the quantity of one ounce daily.

On the 19th, 20th, and 21st days of February, his urine became exceedingly loaded, resembling milk chocolate; and from this time he rapidly recovered his strength, and usual spirits.

C A S E II.

FOR this and the three following cases, I am obliged to Mr Rayne, to whose friendly care, attention, and humanity, the recovery of the first patient is, in a great measure, to be imputed; as he was almost constantly with him, and ready to palliate dangerous symptoms as they arose. And, having attended all the patients usually twice a day, I can bear testimony to the accuracy of his relation.

“ A GENTLEMAN, aged 23, was taken
 “ ill on the 27th of January 1791, but
 “ went abroad till the 30th, when he was
 “ obliged to take to his bed. His pulse then
 “ beat 100 pulsations in a minute; he
 “ complained of pain in his head, and
 “ back; weakness in his knees; and con-
 “ stant

“stant nausea, and sickness. An emetic
“was prescribed; but, having an aversion
“to medicines, he could be prevailed
“upon to take nothing farther than the
“saline draughts in the act of efferves-
“cence.

“His symptoms increasing, and his
“skin continuing parched, two grains of
“James’ powder, by the direction of his
“Physician, were given every two hours,
“in the form of a bolus, on the 1st of
“February; and the effervescing draughts
“were continued.

“On the second of February, his urine
“was remarkably high coloured; and he
“was threatened with a diarrhoea.

“February 3d. His pulse was 120; and
“he had a low delirium: at six o’clock in
“the evening, he had a slight hemorrhage
“from the nose, which recurred at nine
“o’clock: ten grains of bark were added
“to the bolus with James’ powder.

“4th. During the night, he was, at
“intervals, delirious, and frequently sick
“and vomited; and his skin continued
“dry, and harsh.

“5th. He appeared to be weaker. Pulse
“120: countenance dull and dejected; his
“eyes

“ eyes heavy, and could not bear the
“ light. His skin was still dry; and he
“ had so much stupor that he made few
“ or no complaints. Dr. Hall and Dr.
“ Clark met in consultation: four table
“ spoonfuls of a strong decoction of bark,
“ with the compound tincture, were pre-
“ scribed every two hours; with half a
“ dram of the powder in every second
“ dose. Wine, jellies, and chicken broth
“ were ordered to be given freely; and
“ a draught with thirty-five drops of
“ tincture of opium at bed time.

“ No material alteration could be per-
“ ceived for the following six days. He
“ persevered regularly in the use of the
“ bark; his strength was supported by
“ wine, and nutriment; and a diarrhœa
“ was moderated by the occasional use of
“ opium.

“ 12th. His diarrhœa recurred with so
“ great violence that, in the space of two
“ hours, he passed nine liquid stools, the
“ nurse having neglected to give an ano-
“ dyne draught; which was always left
“ with her to exhibit occasionally. In the
“ evening when the Physicians visited him,
“ his pulse was almost imperceptible; and
his

“ his strength was so much prostrated,
“ that he did not appear likely to survive
“ the night. A gill of stoved wine was
“ given immediately ; and a draught, with
“ one dram of aromatic confection, and
“ forty drops of tincture of opium, was
“ prescribed ; and another draught ordered
“ to be given soon afterwards, if he did
“ not fall into rest ; or if the diarrhœa
“ recurred. The decoction of the bark,
“ with the compound tincture, was per-
“ severed in.

“ For the three days following, appear-
“ ances were more favourable ; and the
“ fever began to subside : but, on the 16th
“ of February, his fever recurred ; and
“ his pulse which beat, for sometime past,
“ at 108, rose to 120 ; his urine had a
“ crude bilious appearance ; he became
“ very deaf ; muttered often ; his eyes
“ were impatient of the light ; his coun-
“ tenance dejected ; and he had a trou-
“ blefome wheezing cough. Besides the
“ decoction and tincture of bark, a draught,
“ with one scruple of musk, and fifteen
“ drops of tincture of opium, was pre-
“ scribed every eight hours.

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“ On

“ On the 19th of February, a blister was
“ applied between the shoulders; and, the
“ next day, he seemed more sensible. He
“ persevered in the use of the decoction of
“ bark, with the tincture, and occasionally
“ the powder: the musk draughts were
“ omitted.

“ On the 21st, his pulse beat 120, and
“ was stronger; but, having a large loose
“ stool, and the nurse neglecting to give
“ him a proper quantity of wine, it became
“ more feeble. A draught, with thirty-six
“ grains of opiate confection*, was given
“ immediately; and another, with the ad-
“ dition of twenty-five drops of tincture
“ of opium, was ordered at bed-time. He
“ continued the bark decoction with the
“ tincture, to which was added one, and
“ sometimes two drams of the compound
“ powder of crabs claws; and he took, at
“ least, two bottles of port wine or claret
“ in the twenty-four hours.

“ On the 23d, his fever subsided, his
“ pulse beat 108; and his urine began to
“ deposite; but he often made it with
“ difficulty. The palms of his hands be-
“ came rough; and, afterwards, he had con-
“ siderable desquamation of the cuticle.

“ On

* Confectio Opiata, Ph. Lond.

“ On the 24th, he complained of pain
“ in the left armpit, and the axillary gland
“ began to swell. His wine was, now, gra-
“ dually reduced to the quantity of a
“ bottle in the twenty-four hours.

“ From this time, he began to recover
“ gradually: but the pain and swelling of
“ the axillary gland kept up a very confi-
“ derable quickness of the pulse.

“ On the 12th of March, the abscess in
“ the axilla was opened, and discharged
“ a very great quantity of matter; and
“ from this time he rapidly recovered from
“ a very reduced state, having no recol-
“ lection of what had happened for above
“ three weeks.

“ During the course of the fever, he
“ took seven gallons of the decoction of
“ the bark, each pint containing three
“ ounces of the compound tincture; and
“ eighteen ounces of the bark in sub-
“ stance.”

C A S E . . . III.

“ A YOUNG WOMAN, who waited upon
“ the gentleman, whose case has been just
“ narrated, was attacked upon the 8th of

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February,

“ February, with weariness, head-ach, and
“ a particular aversion to the light, (a symp-
“ tom which all the patients, I attended,
“ had, in a very great degree). Her pulse
“ became 120, her thirst and inquietude
“ excessive. An emetic was given, and, as
“ soon as its operation was over, she took
“ one dram of the bark every three hours,
“ in a cupful of the decoction, to each
“ pint of which were added two ounces of
“ the compound tincture. At bed-time
“ she had a draught with two ounces of
“ the decoction, and thirty drops of tinc-
“ ture of opium ; and was desired to con-
“ tinue the former medicines, regularly
“ in the night, when she awoke.

“ Feb. 9th. She had some rest in the
“ night ; was in a gentle perspiration du-
“ ring this day ; but her fever continued.
“ She was allowed a little wine.

“ For the following days she had every
“ appearance of doing well, her urine
“ deposited a sediment ; and her pulse sub-
“ sided to the healthy standard : but, having
“ given over the bark, or at least having
“ taken only a trifling quantity, her fever
“ returned on the 16th of February. She
“ again had recourse to the medicine, and
“ per-

“ persevered in it regularly till the 24th,
“ when every complaint left her, except
“ weakness.

“ This patient took ten ounces of the
“ bark, and eleven quarts of the decoc-
“ tion.”

C A S E IV.

“ THE LANDLADY of the house, who
“ had been much in the room with the
“ patient, whose case has been related,
“ N^o. II, on the 24th of February, com-
“ plained of stricture over her eyes; shiver-
“ ings; and weakness of her knees and
“ legs, attended with a smart cough.
“ Imputing her disease to catching cold,
“ she went to bed and drank large quan-
“ tities of wine whey to procure perspi-
“ ration, but without effect.

“ On the 25th of February, her febrile
“ symptoms increased; her tongue was
“ foul, and her pulse 112. In the even-
“ ing, she took one ounce of ipecacuanha
“ wine; and at bed-time, a draught with
“ two ounces of decoction of bark, and
“ forty drops of tincture of opium. And,
“ whenever she was awake, she was desired

“ to take one tea-cupful of the decoction
“ of bark.

“ 26th. The symptoms much the same ;
“ the decoction of the bark was ordered to
“ be continued, with one dram of the bark
“ in powder in every alternate dose. Ten
“ drops more of tincture of opium were
“ added to the night draught, having
“ had little rest, since the beginning of
“ her complaint.

“ 27th. She had little sleep last night,
“ having thrown up her draught. The
“ head-ach and feverish symptoms the
“ same. Pulse 120. She persevered in
“ her medicines regularly. At night her
“ pulse was 100, her head-ach abated, and
“ her skin was soft and moist, An ano-
“ dyne was given at bed-time ; and the
“ bark ordered to be continued.

“ From this time her fever began gra-
“ dually to abate ; and her urine to depo-
“ site a sediment. But, finding the bark
“ to raise her spirits, and to give her new
“ life, as she expressed it, she continued it
“ till the 14th of March ; when her fever
“ totally left her ; no particular symptom
“ intervening, or any other medicine be-
“ ing requisite.

“ She

“ She took, during the course of her
“ disease, thirteen quarts of the decoction,
“ and twelve ounces of the powder of
“ bark.”

C A S E V.

“ NURSE ———, aged about 65,
“ came to attend the gentleman, whose
“ case has been related, N^o. II, on the
“ 21st of February, and sat up with
“ him every night during the remainder
“ of his illness; finding herself much fa-
“ tigated, she lay down in the same bed
“ and bed-linen, which he had left for one
“ more commodious in another room,
“ and slept in it for several hours.

“ Some days elapsed before she felt
“ any inconvenience from this imprudent
“ conduct. But, on the 12th of March,
“ the symptoms of fever appeared, which
“ were perfectly similar to those of the
“ landlady of the house*, on the first
“ day of her complaint. Her pulse beat
“ 112. An emetic was prescribed, and
“ the decoction of the bark, with the

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“ tinc-

* See Case IV. page 277.

“ tincture and powder as in the former
“ cases, together with an anodyne draught
“ at night.

“ 13th. No change. Her stomach bore
“ the bark well.

“ 14th. Being threatened with a diarr-
“ hœa, a few drops of tincture of opium
“ were, occasionally, added to the bark.

“ 15th. The diarrhœa ceased. Her fever
“ continued with symptoms of great debi-
“ lity. She took her medicines regularly ;
“ but had the utmost aversion to wine, and
“ every kind of nutriment.

“ From this time to the twenty-fourth,
“ she was frequently delirious in the
“ nights ; but in the day-time sensible.
“ Her urine sometimes deposited a sedi-
“ ment ; but was oftener of an amber
“ colour. Although she could not be pre-
“ vailed upon to take wine ; and only used
“ a small quantity of brandy and water ;
“ yet, as she did not appear to lose ground,
“ and the symptoms were moderate,
“ there was every reason to expect her
“ recovery. But, on the 27th, she took a
“ fancy to ride out some miles into the
“ country, which the people about her,
“ very

“ very ignorantly, allowed; and she was
“ brought back, exceedingly exhausted;
“ and almost dead with fatigue.

“ From this time she had a constant
“ stupor; and was incapable of taking
“ support, or medicine; and died on the
“ 31st of March, being the 19th day of
“ her disease.”

This case I have introduced, because it was the only one which terminated fatally, where the bark had been timely taken, and regularly persisted in, which came under my observation, during the prevalence of this contagious fever. The medicine most certainly had the fairest trial: for near ten quarts of decoction, and ten ounces of the powder were taken. A few days before she went abroad, I visited her. She was then perfectly sensible; had every symptom of recovery; and expressed a great desire to get out into the country; but, as she was very weak, I advised her to take wine and support; and not to think of leaving her house till she got more strength. After this I never saw her; and my hopes of her recovery were frustrated in the manner already related.

CASE

C A S E VI.

THE DAUGHTER of a publican, who humanely took a poor woman, who had just recovered from the fever, into her house, in order to give her some food, soon afterwards found herself indisposed, and went about drooping for fourteen days.

On the 4th day of March, I visited her along with Mr Humble. She had now been confined to her bed for nine days. Her countenance was dull, heavy, and dejected; her eyes yellowish, and much suffused. Her pulse was feeble, and beat 136. She had a low muttering delirium for some days past; and her skin was mottled with a rash, resembling the measles, when they begin to fade. Her urine was pale, and never had dropt any sediment. An anodyne draught was ordered at bedtime; and the decoction of bark to be given frequently.

5th. She slept a little in the beginning of the night, but, at one o'clock in the morning, became extremely delirious and unmanageable. Her pulse at nine o'clock beat 136; and she was deaf, and very stupid.

stupid. A cupful of the decoction of bark, N^o. 10, was given, with ten drops of tincture of opium, as she was threatened with a diarrhœa; and it was ordered to be repeated every hour and a half, with one dram of bark in each alternate dose. In the evening there was no alteration for the better; she refused wine; but took the decoction regularly, which she retained; and as the powder was rejected, it was not persevered in. The anodyne draught, and the decoction were repeated at bed-time.

6th. At one o'clock in the morning, she was seized with a severe shivering fit; and was, afterwards, insensible, and refused her medicines. In the morning, at eight o'clock, her countenance looked worse; her pulse was very feeble, and beat about 130. She had passed three loose stools in the night. I gave her a cupful of the decoction of bark, with ten drops of tincture of opium; and urged the absolute necessity of a regular perseverance in her medicines and wine. At night, she looked better; and her pulse was firmer. The anodyne draught was repeated at bed-time; and her attendant was desired to give her medicines
and

and wine punctually, through the night, when awake.

7th. She slept for several hours, at different times, through the night; she took her wine and medicines well. Her pulse was firmer, and beat 120; and, she seemed disposed to sleep, in the morning, when I visited her.

8th. She slept also much last night: but when she awoke, she bit the cup, when put to her mouth; but drank every thing given to her. In the morning her pulse was 108; and her skin moist. She had taken a bottle of wine during the last twenty-four hours, and her bark regularly.

On the 9th, she was more sensible, longed for milk, which was given to her: and she passed a good night.

On the 10th, she was, at times, insensible, and sobbed much; but took her medicines regularly, and her wine with pleasure.

For the two following days she was almost constantly asleep; and, from this time, rapidly recovered from a very considerable state of weakness.

CASE

C A S E VII.

THE SON of a pawnbroker, aged about 20, on the 16th of March, was seized with head-ach; shivering; and vomiting of bile. For this and the following day, he struggled with his complaint; but was obliged to pass most part of his time in bed.

On the 19th, a diarrhœa and slight degree of delirium being added to his other complaints, Mr Leighton was sent for in the evening, who prescribed an emetic, and an anodyne draught; and, on the following morning, the bark.

March 20th. In the afternoon I first visited him. His countenance was flushed and dejected; and his eyes were dull, heavy, and watery. His pulse was small, feeble, and beat 106 pulsations in a minute. He had tremors of the hands; his skin was a little hot, and thickly covered with the usual rash. His urine was high coloured with a bilious tinge; he vomited at times; and had a diarrhœa. Wine and the bark were ordered, with an anodyne draught at bed time.

21st. No alteration could be perceived. Except the draught, he had taken little
me-

medicine. As he was still threatened with the diarrhœa, four table spoonfuls of the decoction, N^o. 14, were ordered every hour and a half, with one dram of the bark in powder, in each alternate dose. The anodyne draught was repeated at bed-time; but the tincture of opium was omitted in the decoction allotted for the night.

22d. He was in a warm diffused sweat; and the diarrhœa had totally disappeared; but he muttered much, and was frequently delirious.

24th. He was tormented with hiccup; moaned much; had frequently twitchings of the tendons; and his eyes were more dull and suffused.

25th. He slept for two hours last night. In the morning the low delirium still continued. The rash began to disappear; he was very deaf; but the hiccup had very much abated; and his pulse beat 120, soft and fuller. He had, now, increased his wine to one bottle and a half of port in the twenty-four hours.

26th. No alteration. Only he had frequent painful sollicitations to make urine, which was sometimes pale, and sometimes of the colour of amber.

27th.

27th. He rested well last night. In the morning, he was, at times, sensible; his pulse beat 112; his urine became turbid, and, at night, dropt a cretaceous sediment.

28th. He passed a tolerable night. He had two motions of the bowels: in other respects, he was exactly the same, as yesterday.

29th. The anodyne draught was neglected; he passed a bad night; and the diarrhœa recurred. In the morning he appeared much exhausted. A warm anodyne draught was prescribed; and another kept in readiness to be occasionally given. The bark, which he had taken regularly, was ordered to be persisted in.

From this time, he fell into long and composed sleeps. His senses, and appetite, particularly for wine, returned; and, from a state of great debility and emaciation, he was speedily restored to health.

During the course of his disease, he took twenty-three pints of the decoction, and twenty ounces of the powder of bark.

The house-maid, who was the only person from whom he would take his medicines, was seized with every symptom of
the

the fever: but its formation was prevented by the use of an emetic; and sweat: she afterwards took a small quantity of the bark.

C A S E VIII.

————, aged 25, the superintendant of a sail cloth manufactory, where many of the spinners had laboured under the contagious fever, was seized, on the 23d of March, with head-ach, chilness, giddiness, and great oppression of his breast and stomach.

On the following day, he was confined to the house: he became affected with tremors in his hands; staggered when he attempted to walk; his eyes became dull, and, as the family expressed it, his countenance looked as if he had been in a state of intoxication.

March 25th. Though weak, feeble, and giddy, he sat up most part of the day. In the afternoon he took an emetic. Had a slight hemorrhage from the nose. An anodyne draught was prescribed at bed time,

March

March 27th. He had a laxative, which produced three evacuations. In the evening I visited him along with Mr Leighton. His countenance was flushed, bloated, and stupid. He had constant tremors. His pulse was 100; and his skin was mottled with the rash. He complained of head-ach; and said he had got no sleep for several nights. The same medicines were prescribed as in the former case.

28th. He slept none in the night. His eyes were exceedingly dull and much suffused; and the tremors were almost universal. He was very full of the rash; had a constant muttering delirium; and the hemorrhage from the nose returned.

29th. He again bled from the nose; and, when taken out of bed, fainted. He was, constantly, through the whole day, affected with universal twitchings and tremors. He had a low muttering delirium; and was often under the influence of stupor, but got no refreshing sleep. The hemorrhage from the nose returned at night.

For the four following days, he had almost constantly convulsions and tremors; and his countenance was exceedingly
T ghastly.

ghastly. His pulse, however, kept up ; and he took his wine and medicines regularly.

April 4th. He slept well in the night. In the morning his pulse was 108, and his urine deposited a sediment, for the first time ; but the twitchings of the tendons were still frequent.

5th. His senses began to return. He had a great desire for food and wine : and the rash began to fade.

6th. He slept well in the night. Tremors almost gone. Pulse 84.

7th. Pulse 84. Tongue clean ; and his eyes began to regain their lustre ; but he still had tremors.

From this time he began to recover daily ; his urine became loaded ; and deposited thick flocculent sediment. But, as he was extremely reduced, and had considerable desquamation of the cuticle of the hands and arms, his medicines were continued till the 20th of April, though less frequently repeated.

Whilst the convulsive twitchings and tremors continued, he had a draught with opium generally twice in the day. Mr. Murray, a very intelligent Surgeon, his intimate acquaintance, was almost
the

the only person, he would take either wine or medicines from, during the most dangerous state of the fever; and, owing to his great care and attention, the recovery of the patient is, in a particular manner, to be imputed.

During the course of the fever, and convalescent state, this patient took seventeen pints of the decoction of bark, including the tincture; and seventeen ounces and three drams of the powder.

C A S E IX.

A YOUNG WOMAN, who waited almost constantly on the last patient, notwithstanding she took a dose of the bark thrice a day, after being indisposed for some days, on the 6th of April became so feeble and faint, that she was obliged to take to her bed. In the afternoon, when I saw her, she had been sick; vomited bile; and complained of great weakness, and head-ach. Her pulse was very feeble, but little quicker than natural; and her body was mottled with a general rash. Her countenance was dejected; and her eyes extremely dull. An emetic, and an anodyne

draught were prescribed ; and the bark was ordered to be taken to the quantity of one dram every two hours.

April 7th. She passed a very restless night ; her pulse this morning was 90, and very feeble. Her eyes were suffused, and her countenance had the usual dejected appearance. She had slight tremors of the hands ; and was giddy and faint in an erect posture. She took the bark regularly through the day : but, having used little wine, she appeared very languid at night.

From this time, she took about a bottle of wine in the twenty-four hours ; persevered regularly in the use of the bark, and anodyne draught at bed-time. On the 9th, she slept tolerably well in the night : and in the morning was in a warm diffused perspiration. The rash began to fade ; her pulse fell to 80, and became firmer. Next day her countenance began to assume its natural look ; her fever was soon subdued ; and she was speedily restored to health..

C A S E X.

A YOUNG LADY, aged about twelve, of a delicate make, and weak constitution, on the 8th of May 1791, was seized with a
pre-

profuse hemorrhage from the nose. On the following day I visited her along with Mr. Leighton. Her pulse was 118; the hemorrhage had continued with little abatement, and the blood was thin. Her legs were thickly covered with dusky petechiæ, and she had a great number of purple spots on various parts of her body, and a few vibices, resembling small bruises, upon her legs and thighs.

In a case attended with such alarming symptoms, no time was to be lost. She was therefore directed to drink lemonade, with port wine for her common drink; to eat oranges freely; and to support her strength with acescent food, and broth. Two drams of the American extract of bark were ordered to be dissolved in the decoction, N^o. 9, and four table spoonfuls to be given every hour and a half; with half a dram of bark in powder, and five grains of alum in each alternate dose. An anodyne draught was, also, prescribed at bed-time.

Notwithstanding the patient complied most punctually with every direction, yet, for several days, the petechiæ continued of a dusky hue; and the purple spots and

vibices increased in number. Her breath also became offensive; and her pulse rose to upwards of 130; but, except at nights when she muttered much, she kept free from delirium. The blood continued to ooze from her nose, in considerable quantity, and, also, from two pustles on the inside of the lower lip; and the blood was so thin as scarcely to tinge the cloths on which it was received. When the hemorrhage was stopt at the nose, blood either appeared in her urine, or stools, which were very fetid.

On the 16th of May, the petechiæ and vibices began to disappear: her pulse became stronger; but blood, though in lesser quantity, was still at times discharged either from the nose; the lip; the urinary passages; or the bowels. But, as the patient took her medicines and nutriment regularly, and, besides oranges, generally used two or three lemons daily, we began to entertain hopes of her recovery.

By the 20th, the petechiæ and vibices were almost totally gone. Her pulse was reduced to 110. Though extremely weak, she was able to sit up; the hemorrhages had left her; and her appetite became keen.

From

From the time I visited her, to the 22d of May, she had taken twelve pints of the decoction N^o. 9; seven ounces of the bark in powder; two ounces and six drams of the South American extract; and one ounce of alum.

The alum was omitted on the 22d of May, but the decoction N^o. 9, and the powder of bark was continued for the sake of security.

For ten days longer she had every appearance of a certain, though slow recovery. But, on the first day she was allowed to take an airing, being disappointed in procuring a chaise, her attendants permitted her to walk out in the heat of the sun, in a very sultry day. Although they supported her, and she did not walk far, yet she became extremely feverish at night; and the hemorrhage from the nose recurred with violence.

On the following morning, some purple spots and a few petechiæ, again, made their appearance; which were soon removed by the treatment adopted in the beginning of her complaints. But her pulse rose to 136; a cough was added; and, for several days, a very considerable

T 4 quantity

quantity of blood issued either from the nose; the urinary passages; or the bowels.

But, by a steady perseverance in her medicines and regimen, the hemorrhage was, at last, subdued. However she was reduced to the utmost pitch of weakness, and seemed likely to become hectic.

At the end of seven weeks, reckoning from the first attack, though extremely emaciated, she was conveyed into the country for the benefit of goats whey. In a very short time her cough was so much relieved, and her strength improved, that her father judged it proper to take her home to his residence in Edinburgh.

I shall conclude these observations on the treatment of contagious fevers, with the following remarks. From a retrospect of all the cases which have come under my care, the recovery appears to have been, almost, in exact proportion to the time in which the bark had been given. When it was prescribed early and liberally, and no mismanagement happened on the part of the patient, the fever was, commonly, soon subdued;

subdued, or its danger averted. But, in the worst cases, if the disease was neglected only for a few days, derangement of the nerves and *engorgement* of the brain* fre-

* When *engorgement* of the brain takes place, to any considerable degree, in fevers, no medicine, which has hitherto been recommended, is capable of removing it. And therefore, I hope, I shall be excused for proposing mercury, (the only medicine which has been found adequate to remove obstinate congestions in the other viscera) in such a deplorable and dangerous situation. But, at the same time, I confess, I am not able to point out the particular cases to which this practice will apply, from not being able, certainly, to distinguish *engorgement* of the brain, from mere *irritability* of that organ; the symptoms in both being similar. Nor have I tried the practice in so many cases, as to enable me to speak of it with much confidence.

In such cases, calomel is the preparation which I have used; and to prevent it from running to the bowels; and also to allay irritation, I, always, conjoin it with opium; and, unless a diarrhoea be present, a cautious trial of such a medicine can be attended with no disadvantages. If the case depend, merely, on irritation of the brain, the opium will soon relieve it, and the calomel may be omitted: if congestion be the cause, it will be proper to push both articles farther, with care and circumspection.

In order to elucidate the practice, I have mentioned, I shall subjoin the following history, in which the symptoms of determination to the head happened early in the disease; which was also the case, in all the other instances, where I have ventured to give mercury.

A GENTLEWOMAN, after being indisposed for some days with irregular shiverings, and severe head-ach, was obliged to confine herself on the 20th of December, 1790. On the 21st, I visited her. Her pulse beat about 100: the heat of her skin was

frequently took place, which prevented the effects of the bark and every other medicine. Some, indeed, when the disease was very far advanced, experienced a happy change, when they could take the bark freely; but, in many cases, coming under this description, although the patient wrestled through
the

was little above the temperature of health; but her countenance was dejected, and she complained of sickness, and severe head-ach; and at times vomited acid matter. She was not sensible of having got any sleep for some nights past. A mixture with magnesia was ordered; and three grains of calomel, and one grain of opium in pills at bed-time. On the 22d, having a pain in her side, a blister was applied: no blood was taken as her pulse did not require it. On the 23d, she had a low muttering delirium; her countenance was more dejected; and she vomited bile frequently, notwithstanding the use of the saline draughts in the state of effervescence. On the 24th, the irritability of stomach was greater, and the pain very insufferable. Nothing afforded relief, nor was long retained, except the calomel opium.

For five days following, she had a constant delirium; picked and gathered much about the bed clothes; and often searched for pins both in the bed and in her mouth, which she maintained were full of them. Her pulse was small and frequent; her urine, sometimes pale, sometimes high coloured; and her eyes were suffused. She had a blister applied to the nape of the neck; which, however, seemed to be attended with no advantage. The calomel was continued, with opium at bed-time. On the 31st of December, she returned to her senses, and complained of her mouth being sore. She had taken, in all, thirteen grains of calomel. The tenderness of the gums continued for a few days. Her urine deposited largely; and, by the use of the bark, she was speedily restored to health and strength.

the distemper by its assistance, the recovery had more the appearance of an escape than a cure.

Upon the whole, whoever wishes to be successful in preventing the fatality of fever, must commence early with the bark, before much debility has taken place: and, although this practice does not promise infallibility, yet, it may be affirmed, that if regularly persevered in, much fewer will die of this, than of any other disease of importance; even where the method of treatment is established by the unanimous consent of Physicians.

S E C T. III.

OBSERVATIONS ON INTERMITTENT FEVERS.

THE common mode of practice, which limits the use of the bark to the intermissions of fever, although it answers very effectually in tertians and quartans ; yet, in quotidians, and double tertians, where the intervals are short, and often incomplete, is attended with insuperable disadvantages. The few hours of intermission, in such cases, afford no time to throw in a sufficient quantity of bark to prevent the recurrence of the paroxysms. The disease in consequence is aggravated ; and, from the only medicine being withheld, which can give security, very frequently, terminates fatally.

The experienced Dr. Lind observes,
 “ That, when the ague was stopped by the
 “ bark, after the first or second fit, as in
 “ his own case, and in those of two hun-
 “ dred of his patients, neither a jaundice,
 “ nor a dropfy ensued. When the bark
 “ *could not* be administered, on account of
 “ imperfect remissions of fever, or when
 “ the

“ the patient had neglected it, either a
 “ dropfy or a jaundice was the certain
 “ confequence ; and the degree of violence,
 “ with which it attacked, was in propor-
 “ tion to the number of the preceding fits,
 “ or the continuance of the hot fit. By
 “ every paroxysm the dropfical fwellings
 “ were increafed and the colour of the
 “ fkin rendered of a deeper yellow *.”

This eminent Phyfician, who has contri-
 buted fo much to the alleviation of the
 fufferings of patients afflicted with inter-
 mittents, by eftablifhing the efficacy of
 opium in the paroxysms, ftill retains the
 common opinion, that the bark can only
 be given with fafety in the intermiffions.
 But, in dangerous intermittents, where
 the apyrexia is fhort and imperfect, con-
 fining the bark to the intermiffions alone,
 amounts almoft to the fame thing, as to a
 prohibition of its ufe : and experience has
 convinced me, that its exhibition in the
 paroxysms is not only perfectly fafe, but
 attended with the greateft advantages.

Whilft I refided at China, in November,
 1771, intermittents were prevalent, as has
 already

* Lind on Hot Climates, 3d Edition, Page 294.

already been mentioned*. The interval free from fever was often of very short duration; and the paroxysms severe, and attended with alarming symptoms. After cleansing the stomach and bowels thoroughly, I immediately commenced with the bark; and continued it regularly in the paroxysms. An opiate, after the end of the cold stage, was necessary to prevent irritability of the stomach, as well as to mitigate the hot fit. By this procedure the danger was averted, and the disease speedily cured; whereas I could adduce several instances, when bark was only given in the usual mode, from the end of one paroxysm to the beginning of another, where the disease either proved fatal, or the recovery tedious.

Having ascertained the safety of administering the bark at every period of intermittents, I was induced at China, and afterwards in this country, to try its effects in the paroxysms only. I began by giving two drams at the accession of the fit, and repeated the same quantity in the middle of the paroxysm. This plan
gene-

* Page 131.

generally succeeded in removing the disease, with a very small quantity of the bark; and the only disadvantage I ever observed to follow, was that the dose, taken in the cold stage, was frequently rejected. I, therefore, soon altered the above method, and exhibited two drams of bark, two hours before the recurrence of the paroxysm; and, when the cold fit was over, I gave an opiate, and, as soon as the sweat began to flow, other two drams of the bark. By this management the medicine is easily retained; and the disease removed by half the quantity, which is required when it is given in the intermissions only.

Although this method of prescribing the bark, may be attended with very great advantage, in saving a medicine, which, in particular situations, cannot easily be re-placed; yet, in quotidians attended with danger, it will be adviseable to give it also in the intermissions of fever. But, after the fits are stopped, two drams of the bark, given at the time when the rigors were wont to make their appearance, and the same quantity four hours afterwards, will be sufficient to prevent a relapse; and, after a few days perseverance,

rance, the dose may be reduced to one dram.

When agues are simple, and not complicated with any other disease, I never saw the bark, when given early and liberally, fail to cure them. But, when from neglect, the patients suffer them to run on, they often become extremely obstinate. In such cases, even where there have been no symptoms of visceral obstruction, I have found a few doses of calomel, given every night, with opium when it proved too purgative, remove the cause, which had rendered the distemper rebellious; and, after resuming the bark, the disease has been speedily subdued by a very inconsiderable quantity.

But when agues, by their long continuance, have brought on visceral obstructions, threatening a fatal termination under the appearance of jaundice, or dropsy, nothing can rescue the patient from impending destruction, except a judicious course of mercury. Such deplorable instances, are often to be met with in the East Indies; and every year, since my residence in Newcastle, has afforded me an opportunity of attending some
patients

patients returning from Lincolnshire and other fenny countries after the harvest, reduced to the utmost pitch of weakness, by the continuance of obstinate intermittents. By the use of mercury* the most formidable obstructions were removed; and I do not recollect a single patient in whom the ague was not soon afterwards subdued by a moderate use of the bark. To illustrate the practice, which has been recommended, I shall subjoin the following case.

JOHN KIRKUP, aged 21, was admitted to the Dispensary on the 16th of March, 1784. He had laboured under a quartan intermittent for six months, with which he was seized in the shire of Cambridge. For the first four months he took no medicine: but for the last two months, being an in-patient of the Infirmary, the bark was administered in large doses, without stopping the paroxysms.

About three months ago his abdomen and legs began to swell. He was now very much emaciated. His legs, thighs, U and

* Calomel is the preparation of mercury I have commonly prescribed in such cases; but, if it ran too much to the bowels, the pills, N^o. 16, or inunction was substituted.

and belly were very much swelled; and he voided his urine in small quantities. His pulse beat 120; he had a very severe cough; and was dismissed from the Infirmary as not likely to receive benefit. Although his case, indeed, appeared hopeless, I was induced to try the effects of mercury, which I had often found successful in similar, though less dangerous, cases. Four grains of calomel, with an anodyne draught, were administered every night at bed time; and six spoonfuls of the alkaline infusion, N^o. 17, thrice a day.

March 19th. The anasarca swellings were considerably reduced, and he now began to void urine freely. The intermittent had changed from the quartan type, and he had a paroxysm every day since he began the use of his medicines. The cough continued without abatement; and, for the last twenty-four hours, he complained of a severe pain in the epigastric region. Upon examination considerable fulness and hardness were perceptible to the touch; extending from the right hypochondrium, over the whole epigastrium. A blister was applied to the part affected; two grains of calomel were
ordered.

ordered every night at bed time; and a draught, with antimonial wine and tincture of opium, every day at the attack of the hot fit, with a view to mitigate the paroxysm.

March 25th. I visited him daily since the last observation. The paroxysm came on later every day, and continued only for two hours. His appetite began to return, and he daily recruited some strength. The dropical swellings were removed. He was now free from pain, but the region of the liver felt hard. His mouth being affected with the mercury, which he had continued regularly, its use was now suspended. The anodyne draught was continued; and the bark was prescribed every two hours in a saline draught.

March 30th. He has had a moderate salivation, and his mouth still continues sore. He has had no return of the paroxysm since he began the bark. His pulse is now 100. Every symptom of abdominal obstruction is removed; and he daily gains strength and spirits.

April 9th. Since the last observation he went abroad daily, and recovered very rapidly. But, for a few days past,

having omitted the bark, the ague recurred; and his abdomen has again become tumid. Two grains of calomel were ordered every night at bed-time, and two drams of the bark, before the attack of the cold fit, with two drams more in the middle of the paroxysm.

The calomel was continued for six nights in succession, occasionally with opium, which removed the tumor of the abdomen. The bark speedily prevented the return of the fits of the ague: and, on the 10th of May, he had perfectly recovered his usual state of health and vigour.

In the year 1785, spring intermittents were unusually severe, and generally of the quotidian type, with short and imperfect intermissions. Besides the use of an anodyne at the beginning of the hot fit, a few doses of calomel, at bed-time, were productive of great advantages; and, afterwards, the disease soon yielded either to the red or common bark; but it often was necessary to give two drams of the latter for a dose.

With respect to the question, whether the red bark possesses a superiority over the common bark in curing agues, provided
both

both be equally genuine, it is no easy matter to decide? With the common bark I have found no difficulties, when given in large doses. But red bark of the first importation in 1779 removed agues, given in doses of about half the quantity, which were required, when the common bark was prescribed. I was however sometimes obliged to give over the red, and have recourse to the common bark, on account of the former occasioning vomiting and purging.

The red bark, for some years past, being either adulterated, or of an inferior quality, has lost much of its reputation: and common bark has again acquired, at least in this place, a decided superiority.

The new extract of bark, prepared in South America* appears to possess the sensible properties of the bark in a concentrated state. I have tried it in agues, in divided doses from two to three drams, in the interval of the paroxysms; which sometimes succeeded, but oftener failed. Its efficacy is much improved, when two

U 3 drams

* See an account of a new extract of bark prepared in South America. LONDON MEDICAL JOURNAL for 1790. Part I.

drams of the extract are dissolved in ten ounces of the decoction of bark whilst hot; and to render the solution more palatable, it may be flavoured with spirit of cinnamon, and made into an emulsion with almonds triturated with sugar. This *formula* taken to three or four spoonfuls every two hours, will often remove agues in children. But in the quotidians of adults, which have been prevalent this summer, two drams dissolved in a pint of strong decoction, warmed with the compound tincture of bark, taken every twenty-four hours, have often failed in removing the fits; and the cure with it has always been tedious. This extract, therefore, must never be depended upon in cases of danger; but recourse must be had, at the same time, to the powder, as soon as the stomach will bear it.

Before taking leave of this subject, I shall offer a few remarks on the arsenical solution. After perusing so respectable testimonies, in favour of the efficacy and safety of arsenic in agues, by Drs. Fowler, Arnold, and Withering, I began to prescribe it. My views were to save expence to the Newcastle Infirmary and Dispensary
and

and to ascertain, by personal experience, whether or not it might be recommended as a substitute for the bark, in situations in the East Indies, where the latter cannot always be procured.

The form of the arsenical solution*, I prescribed, differed only from that recommended by Dr. Fowler, in omitting the spirit of lavender, which I supposed might occasion some precipitation of the arsenic, and in substituting nitre for the alkaline salt, which, with the cochineal, gives the preparation a good colour. This solution I gave to twenty-five adult patients in the Infirmary, labouring under tertians and quotidians, from eight to ten drops twice, and sometimes thrice, a day, in a cupful of barley water; and, in two instances, the dose was increased to sixteen drops. Of

U 4

this

* R. Arsenici albi in pulverem subtilissimum triti grana sexaginta quatuor;

Salis Nitri drachmas duas;

Coccinellæ grana decem,

Aquæ distillatæ libram dimidiam.

Immitantur in ampullam florentinam qua in balneo arenæ posita; aqua lente ebulliat donec arsenicum perfecte solutum fuerit, deinde cola per chartam et adde: Aquæ distillatæ libram dimidiam, plus vel minus, adeo ut solutionis mensura libra una accurata sit, vel potius pondere unciarum quindecim cum dimidia.

this number only twelve patients were cured. In the remaining thirteen patients, the solution having no effect in suppressing the fits, the bark in powder soon removed the disease. Another Physician to the Infirmary gave the solution a fair trial in eighteen patients ; and of this number only eight were cured. But to do ample justice to the solution, I must not conceal, that two patients of other Physicians were cured by it after they had prescribed the bark in vain.

At the Dispensary, I prescribed the solution to several patients, in the form of julep, of which every half ounce contained the number of drops allotted for one dose. One table spoonful was given in barley water twice or thrice a day. Sixteen were cured, but the number of the cases in which it failed cannot be ascertained, from the register not being kept accurately ; and from the patients not having all returned the letters of admission on which the prescriptions were entered.

To several Surgeons in the neighbourhood, who live in situations where agues prevail, I recommended a cautious trial of the solution. All of them spoke favourably

vourably of the medicine; although they allowed that it often failed. But their reports, being only made from memory, afforded no decided proof of the comparative advantages resulting from this practice. And as their patients consisted generally of the laborious poor, who, from the narrowness of their circumstances, as well as from prejudice, seldom give the bark a fair trial, the comparative success of the solution, to gentlemen in such lines of practice, will ever appear favourable. But, when their patients took the bark liberally, none of them made complaints of meeting with disappointment in agues, unless complicated with other disorders.

When the continuance of agues had brought on much weakness, I seldom, in such cases, tried the solution as, according to expectation, it failed in two debilitated patients. In all the cases in which I exhibited the arsenic, no other disadvantages arose, than sometimes sickness, griping, and purging: and, in a few instances, a swelling in the face and over all the body, which soon disappeared on discontinuing the medicine. But from producing such violent effects, I have little doubt, if the
solution

solution be persevered in, after the griping and swelling appear, that death would follow from the gradual accumulation of this poison in the body, even when given in small doses *. And, therefore, I would
recom-

* Since these sheets were prepared for the press, I have been favoured with the following communication from an ingenious medical friend; whose candour and humanity have allowed it to be published.

“ Should the following observations upon the use of the
“ arsenical solution be deemed by you of service, either in
“ shewing the efficacy of the remedy, or in warning others
“ from an incautious exhibition of it, I freely give my
“ consent to your making whatever use of them you may
“ think proper.

“ The cold easterly winds, prevailing in the months of April
“ and May 1790, gave most of the complaints of that season,
“ the intermittent or remittent type. The former, in some
“ parts of the country, were so common as to be epidemic;
“ and, upon more minute inspection, one might easily trace
“ contagion as one of the causes of the complaints. In a work of
“ importance in the neighbourhood, this disease raged with such
“ violence, as to raise serious alarms for the consequences.
“ My attendance being requested, I had an opportunity of
“ observing the progress of the disease, and the efficacy of
“ Dr. Fowler’s remedy for its cure. At my first visit I found
“ whole families attacked with the complaint, and no sooner
“ had it entered a family, but the wife took it from her
“ husband, and communicated it to her children.

“ The number of patients I had, and their aversion to take
“ the bark, induced me to give the solution as recommended
“ by Dr Fowler. I previously exhibited an antimonial emetic,
“ which commonly evacuated a large quantity of bilious *scordes*,
“ that lodged in the stomach, rendering it extremely irritable,
“ and

recommend all who may venture to prescribe the solution, to exhibit it in draughts ;
or

“ and the bowels inert. Afterwards, in the first paroxysm,
“ an opiate joined with a few grains of calomel, so as to render
“ the intestines open, was the general mode adopted, before
“ administering the solution ; which was then ordered to be
“ taken three or four times a day, in doses according to the
“ age of the patient, or as the urgency of the symptoms
“ required. Out of an hundred cases there were only four
“ which resisted this remedy. One of them had, previous to
“ his being seized with the complaint, lost a great quantity of
“ blood from an accidental wound : the other three had
“ removed from a more healthy part of the country, to a
“ marshy unwholesome situation. The bark was then given
“ which cured them all except one ; who after having tried,
“ without effect, several remedies, was recommended to
“ change his situation ; which he did for a fortnight, and was
“ perfectly cured.

“ I cannot conclude without mentioning one case which
“ terminated unfortunately from pursuing the use of the
“ medicine too far. A boy, aged twelve years, after having
“ taken the preparatory remedies, had a phial of drops sent
“ him, composed of half an ounce of the arsenical solution,
“ and the same quantity of tincture of lavender, of which he
“ was to take from ten to twenty drops four times a day ; with
“ a strict caution to his parents to desist, should his face swell,
“ or sickness and griping come on. This advice being neglected,
“ and the use of the drops persevered in after his
“ face was swelled, brought on also a swelling and puffiness
“ over the whole body ; attended with violent griping, nausea,
“ and vomiting. Allowing him to remain in this state for two
“ or three days, and not finding him likely to get better, they
“ acquainted me with his situation. Upon visiting him his
“ appearance was terrible indeed : the whole cellular membrane
“ seemed

or in a julep containing a few doses, and to attend carefully to its operation.

Upon the whole the arsenical solution, (from the result of my own experience, and even from the report of the Physician*, who, in this country, has contributed to extend its use) can in no degree be compared with the bark in point of efficacy. I therefore must forbear to recommend it as a substitute for the bark, in unhealthy situations of hot climates, where agues soon induce great debility, which will ever require the use of this last invigorating febrifuge to subdue them.

C H A P.

“ seemed blown up, the scrotum livid, the internal parts to be
 “ similarly affected, and the fauces so much enlarged, as to
 “ resist the passage of liquids; the pulse fluttering, with heat,
 “ stupor, and in short every appearance of approaching death.
 “ Both external and internal *stimuli* were applied in vain: a
 “ few hours more finished his existence.

“ This case has made me more cautious in the administration
 “ of this medicine to the poorer class of patients; which I now
 “ do, in a more diffused vehicle, with equal success, and
 “ greater safety.”

* Dr. Fowler who managed the arsenical solution with great judgment and caution, gave it to two hundred and forty-seven patients labouring under intermittents, of whom one hundred and seventy-one were cured. See *Medical Reports of the effects of arsenic.* &c.

C H A P. III.

OBSERVATIONS ON THE DYSENTERY.

NEXT to fevers the dysentery proves most fatal to Europeans in the East Indies. This disease, indeed, which is every where essentially the same, has been the scourge of our fleets and armies in every part of the globe; and, notwithstanding the many opportunities of finding out more successful methods of treatment, has hitherto continued to commit incredible devastation.

In treating of this subject, I shall, in the following sections, give an account of the disease, as it appeared in my voyages to India; offer some observations on particular remedies; lay down the common method of treatment which was then pursued; and lastly point out the manner of giving mercury in obstinate dysenteries, a practice which has been followed in this place, for some years past, with singular success.

S E C T.

S E C T. I.

DESCRIPTION OF THE DYSENTERY.

THE dysentery, during the first days, frequently resembles a simple purging ; but, as soon as the mucus is washed off the bowels, the gripes and tenesmus become violent, and the pulse is accelerated : the stools are small, slimy, and often bloody. The disease, unless its progress be prevented by proper treatment, grows daily worse, till it either prove fatal, or become chronic.

In unhealthy situations, when epidemic fevers rage, the dysentery is very dangerous. It begins with great rapidity ; and rather seems to be a symptom of the fever than an original disease. This kind of flux has been justly considered by Sydenham, and the most eminent medical writers after him, as the same disease affecting the intestines. But as it greatly alters the type of the prevailing fever ; and differs, in some respects, with regard to the cure, I shall give the description and treatment of
the

the putrid dysentery which happened at Bengal, during the sickly season, in 1768.

The disease, for the most part, began with lassitude, slight rigors, disorder at stomach, and bilious vomiting. At first, it exactly resembled the fever, but the paroxysm did not run so high; and the patients were not so apt to rave. In a day or two, and sometimes later, the dysenteric symptoms made their appearance; and were attended with the greatest prostration of strength and spirits. If there had been any remissions of the fever at first, they now disappeared: the skin continued hot, the pulse was small and quick; the tongue became very foul; and the patients were frequently troubled with hickup.

When the sick applied early for assistance, the fever and gripes were carried off in a few days; and, in general, the disease was either removed or became chronic. If it happened otherwise, the symptoms were daily aggravated; the tongue became very black, and the teeth were covered with a tenacious slime. The nausea, hick-up, and gripes were very severe; the stools were small, frequent, and exceedingly putrid, accompanied with tenesmus, and sometimes

sometimes *procidencia ani*. The frequency of the evacuations soon reduced the patient to the greatest weakness; and his countenance became inexpressibly ghastly.

As soon as mortification of the bowels took place, the gripes and other painful symptoms suddenly vanished; but the nausea, hickup, and vomiting still continued. The pulse became small, quick, and fluttering; the stools passed off insensibly, and were intolerably offensive. In all the patients, at this period, convulsive twitchings of the tendons, tremors, and delirium were added.

At this stage, several vomited a viscid fluid, which tinged the linen, and bed-cloths black. Some had pustules on the legs, arms, and breast, filled with ichorous matter, which degenerated into black putrid sores.

At last the pulse failed; the extremities became cold; and the patients, after having been for some days almost insensible of their miserable sufferings, generally expired at stool, exceedingly emaciated.

In some, the dysenteric fever at Bengal, through the whole course of the disease, had regular remissions. In others, it was

accompanied with a pain in the region of the liver; a tickling cough; and a vomiting of viscid flime. The delirium was never constant, the senses and judgment remaining at intervals entire.

The duration of the dysentery was uncertain: at Bengal it frequently carried off the patient in a few days: at China, if neglected, it proved fatal in seven or eight days; and, in most places, it was seldom protracted beyond the sixteenth day; except it assumed a chronic form, and then it sometimes proved fatal after six or seven weeks.

The dysentery depends upon the same remote causes as the remittent fever, and, in unhealthy seasons, is generally, at the same time, epidemic, and always contagious. But it may appear at any season, in hot climates, in consequence of perspiration being suddenly checked by night fogs, or rainy weather; and by imprudently exposing the body, after being much heated, to the chilling effects of land winds.

The causes of death, in the dysentery, are various. But so far as my observations have extended, both in India and in this

country, all the fatal terminations, in the early stage, have depended upon mortification taking place in the bowels; except in children where irritation and debility have brought on convulsions. In the advanced stage (depending upon inflammation, ulceration, and a diseased state of the intestines *) sometimes, likewise, mortification,

* Dr. Cleghorn upon opening the bodies of patients, who died of the dysentery, at Minorca, constantly found the great intestines either entirely mortified, or partly inflamed, and partly mortified: the rectum was most affected, and, in many, he observed schirrous tubercles straitening the cavity of the colon in several places.

The morbid appearances in dysenteries have been still more fully described by Mr. Hewson, Dr. Woollaston, and especially Dr. John Hunter in his observations on the diseases of the army in Jamaica. As the dissections of these gentlemen illustrate the causes of death in the dysentery, they should be carefully attended to; and, therefore, the reader is referred to the works which contain them. But I cannot refrain from introducing the following quotation, from Dr. Hunter's book, as it contains much information, on this subject, in few words.

“ Upon a first view the bowels, particularly the colon, appear irregularly contracted, and redder than natural at the contracted parts. Upon a nearer inspection, by cutting out portions of the gut and examining the internal coats, the appearances of disease become more evident. There are to be seen small tubercles, like pustules, sometimes in a smaller, sometimes in a greater number; and they are to be found in different stages, so that their progress can only be collected

tion, but more frequently an habitual fever with extreme emaciation puts a period to the patient's miseries.

X 2

S E C T.

“lected from several observations combined. The same subject
 “will frequently furnish, in different portions of the gut, ex-
 “amples of the several stages. Their progress appears to be
 “nearly as follows; there is first a small round tubercle of a
 “reddish colour, and not more than one tenth of an inch in
 “diameter; it increases gradually till it be near a quarter of
 “an inch in diameter, and becomes paler as it grows larger.
 “In this stage there appears a small crack on the top with
 “a slight depression, which gradually increase; and, on ex-
 “amining the contents of the little tumour, I have generally
 “found them to be a cheese-like substance. The pustule, for,
 “though it contain no *pus*, I do not know any name more
 “expressive of its appearance, is seated under the villous coat,
 “between that and the muscular coat. As the opening en-
 “larges, the edges become prominent, and the base grows
 “rough and scabrous, from which matter oozes out, that is
 “sometimes tinged with blood. Such is the progress of one,
 “but they are often in clusters, and become confluent, so as
 “to form a rough unequal ulcerated surface, with an hard
 “and thickened base. Sometimes they appear like a small
 “eating ulcer in the gut, in which the prominence of the
 “edges gives an appearance of a loss of substance, or as if the
 “villous coat were entirely removed.”

The ingenious Dr. Donald Monro has also given a full account of the appearances, he observed on dissecting the bodies of those who died of dysenteries. In all of them he found a number of black gangrenous spots in the colon and rectum, and erosions of the villous coat of those intestines: and he says, that Mr. Glass, an ingenious Surgeon, in the service of the East India Company, in the bodies of several people who died of the dysentery, in his two last voyages, found black spots with
 erosions

S E C T. II.

OBSERVATIONS ON PARTICULAR REMEDIES USED
IN THE DYSENTERY.

BLEEDING has been esteemed absolutely necessary in the beginning of most fluxes. When the disease is accompanied with a fever of the inflammatory kind, no evacuation is better calculated for the relief of the patient; or better adapted to restrain the hemorrhage. But, in hot climates, fluxes being either of a chronic nature, or accompanied with a low fever, the strength of the patient sinks from the beginning. When blood appears in the stools, which, how-

erosions in the middle in the rectum and colon: and, in two patients, the lower part of the ilium was affected in the same manner.

Sir John Pringle relates the morbid appearances he observed in dissecting a soldier, who had been ill, about twenty-three days, of the dysentery. The large intestines were of a blackish colour, and had a putrid appearance: their coats were remarkably thick, and on the inside ulcerated, especially in the rectum and lower part of the colon, where the villous coat was either abraded, or changed into a corrupted slimy substance of a greenish cast. See *Sir John Pringle on the diseases of the army*, 7th Ed. page 244. *Baker's Opuscula Medica, iterum edita*, page 69, and *Monro's Observations on the means of preserving the health of soldiers*, Vol. I. page 326.

however, is not always the case, there are the most evident symptoms of debility, and tendency in the humours to putrefaction. The hemorrhage seems to be owing to a determination of the blood to the intestines, and not to too great a quantity in the general system; and the erysipelatous inflammation of the villous coat of the intestines appears to be occasioned by acrid humors contained in them. To lessen the quantity of blood would only serve to impair the patient's strength; and, if it did not immediately prove fatal, would, at least, precipitate his fate. I do not remember to have met with above a case or two which seemed to require bleeding; and the operation, though performed early in the disease, did not in the least relieve the patient.

EMETICS. The most effectual emetics are either emetic tartar* combined with ipecacuanha, or a few grains of the former dissolved in a decoction of tamarinds. This last form was preferred when the patient was feverish, and it not only proved one of the most powerful emetics;
X 3 but

* Antimonium Tartarifatum, Ph. Lond.

but likewise, by acting as a purge, relieved the troublesome tenesmus. I never above twice tried the cerated glass of antimony, which, in the first case, did not operate at all, though given to the quantity of ten grains; and, in the last, operated very severely. The small quantity of wax contained in this preparation can certainly be of little or no service. Emetic tartar, being the most certain of all antimonials, ought to be preferred.

PURGATIVES are of the greatest consequence in this disease: but at the same time that they ought to evacuate powerfully, they should not stimulate too much. For this reason, the neutral purging salts answer best; and the medicines of this class, to which I have usually trusted, are Glauber*, and the bitter purging salts†. In general, I have found the last operate with more ease than the former. There being a necessity for frequent repetitions of these medicines, they ought to be rendered as palatable as possible; and every addition which alters their easy purgative qualities should be carefully avoided. Manna, which
is

* Natron Vitriolatum, Ph. Lond.

† Magnesia Vitriolata, Ph. Lond.

is very commonly given with these salts, renders them more nauseous; and, by occasioning fermentation in the bowels, brings on gripes during their operation.

The best correctors of bitter saline purges are cryftalls of tartar, or lemon-juice, with brandy, which render them more agreeable to every palate. This is undoubtedly a matter of no small importance, where there is an absolute necessity to continue them daily; besides, in putrid cases, such additions must be conducive to the cure.

Castor oil, when properly prepared, and not grown rancid by keeping, I have found to be one of the best purges in the dysentery. It seems to be possessed of an anodyne quality, frequently easing the painful gripes as soon as taken, and seldom fails, when it agrees with the stomach, to procure copious evacuations.

Rhubarb, in large doses, with calomel, for want of other purgatives, has been frequently tried; but, during its operation, the gripes were generally increased, and the troublesome tenesmus seldom or never mitigated. Finding this to be the case, upon exhibiting the first dose, I seldom

repeated it a second time to the same person: and observing, that, after some of the patients in the Bengal flux had been in a state of convalescence, a few grains of calomel, given for some urgent venereal symptom, brought on a salivation, and sometimes a return of the former symptoms of the dysentery, I had my fears concerning the propriety of prescribing mercury; which, at that time, I believed to be a powerful septic.

But although rhubarb does not answer in the beginning of the dysentery, yet, in its advanced state, it often produces the best effects. In the Bengal flux, when the patients were in a convalescent state, rhubarb often proved of great service; particularly when five grains of the powder, or a dram of the tincture, was exhibited in a glass of wine before dinner; but, in bad cases, a decoction of bark, sometimes with cascarilla, was prescribed at the same time.

IPECACUANHA, in small doses, has been accounted a specific for the cure of the dysentery. The qualities of causing perspiration, relieving the gripes, and opening the bowels, are usually ascribed to

to it. If it were really possessed of these virtues, it would undoubtedly be an inestimable remedy. I have frequently tried it, but must acknowledge, with very little advantage. A few grains of it will keep up a troublesome sickness, but I seldom saw it relieve the gripes, or occasion an easy stool. In the beginning of the disease, prescribing it alone is only trifling with the patient.

From the failure of ipecacuanha, so much celebrated as a principal remedy in Europe *, I was induced to believe, that by keeping, in a hot climate, it was totally deprived of its purgative qualities. The authority of Piso, who first recommended it in the dysentery, confirms me in this opinion. He gave an infusion of it when fresh, and chiefly relied upon its virtues as a cathartic.

But I would not seem to infer from this, that ipecacuanha is an useless medicine in the dysentery: when joined with opium, it is one of the best astringents; and when
given

* Ipecacuanha I have since found as little to be depended upon in the dysenteries of this country, as in those of the East Indies.

given with an intention to clear the first passages, its purgative quality can be restored by the addition of a quarter of a grain of emetic tartar to each dose. In this last form I have often given it with good effects; but when the purgatives already mentioned can be procured, they ought always to be preferred.

ASTRINGENTS. Many medicines, from their power in restraining diarrhœas, have had this title conferred upon them. But a dysentery, consisting in a constipation of the bowels, has no occasion, at least in the beginning, for such remedies. In this disease, indeed, a purging may sometimes continue merely from want of tone in the bowels; but, as the chronic state, nine times out of ten, depends upon ulceration or obstruction in the coats of the intestines, astringents are commonly useless, and generally very pernicious.

The compositions most commonly prescribed for restraining profuse evacuations of the bowels, are diascordium; the compound powder of bole, or of chalk, with opium, of the London Dispensatory; or the japonic electuary of the Edinburgh Dispensatory. The three first are gently astringent,
but

but their virtues depend chiefly on the opium and the absorbent powder they contain. The latter is more astringent and is likewise combined with opium. But they are all extremely hurtful in the early state, and seldom afford any lasting advantage, even in the chronic stage of the distemper.

In the advanced state of the disease, when astringents seemed allowable, in my voyages to India, I tried the extract of logwood, and simarouba, but always found them very ineffectual medicines. They both soon spoil in hot climates; and, with respect to the extract, this probably was a fortunate circumstance; otherwise, in the liberal manner I have known it prescribed, it might have produced many serious ill effects. In my practice, in this country, I have seldom prescribed any of these astringents in the dysentery, finding the few rare cases, which depend upon mere laxity of the intestines, yield readily to small doses of ipecacuanha and opium; and to the use of colombo in infusion or powder,

PERUVIAN BARK, from its corroborant, astringent, and antiseptic virtues, seems

seems to be well adapted for the cure of this disease, especially when it depends on the same causes which produce remittent fevers. Although it will generally be found to be possessed of virtues far superior to every other astringent, yet it is not near so great a specific in fluxes as in fevers. In the putrid flux at Bengal, however, no medicine was attended with more wonderful effects *. It was found as necessary a
part

* In the year 1771, after a tedious voyage to the coast of Malabar, a putrid dysentery made its appearance on board the True Britain Indiaman. The following observations on the cure were communicated to me by Mr Foreman, Surgeon of that ship.

“ After thoroughly cleansing the primæ viæ, I found it the best way to have immediate recourse to the bark, in as large doses as the stomach would bear, with a grain of opium every four hours. This method of treatment was owing to the following incident.

“ January 14th, 1771. At Onoar, I was seized with a cholera morbus, which terminated in the dysentery. A variety of medicines were tried, but in vain. The disease daily increased, my strength was much reduced, and my stools became exceedingly putrid.

“ On the 29th, I arrived at Bombay, and, by the advice of the Surgeons there, took pills of ipecacuanha and camphor, a medicine in great repute in most parts of India. During the use of these, becoming daily worse, I was determined once more to prescribe for myself, and therefore took, every four hours, two ounces of a strong decoction of bark, with a grain of opium. My drink was port
“ wine

part of the cure as evacuations by vomits and purges. At first, cascarilla was given with

“ wine negus, and I eat a pound of grapes in the day. In
“ three or four days, I was so much better that my stomach
“ could bear a dram of the bark in substance every four hours ;
“ but it was still necessary to take opium, to prevent it from
“ running off by stool. As my strength returned I gradu-
“ ally left off the use of the opium, but continued the bark
“ till I was able to use the cold bath.

“ Upon my recovery I was desired to visit Mr. —, who
“ came out in the *True Britain*, and was seized with the
“ disorder in the middle of January ; I found him much ex-
“ hausted. From the time he landed at Bombay, he had
“ taken nothing but the pills of ipecacuanha and camphor. A
“ dose of salts was prescribed, and the bark and opium in the
“ same way I had used them ; by which means the disease
“ was removed in a few days.

“ Our Joiner, after having been several weeks in the
“ hospital, where he was growing daily worse, left it, and re-
“ covered in little more than a week by the use of the bark
“ and opium.

“ Above thirty dysenteric patients were treated in the
“ same manner, and I was so fortunate as to lose only one,
“ who, after having had the disorder a long time, relapsed in
“ the convalescent state, and died in a few weeks. But it is
“ necessary to remark, that this man had such an aversion to
“ the bark, that, although he had been cured by it once, I
“ could never prevail upon him to take it again in any form
“ whatever. Three others, indeed, died of this disease ; but,
“ as I did not attend them, bark and opium were not pre-
“ scribed.

“ Till lately, I imagined this was a new method of
“ treating the dysentery ; but, in looking over Dr. Morton’s
“ works, I find bark and opium were given in as large doses
“ by that judicious Physician.”

with advantage ; but, the symptoms of putrescency running high, it was thought necessary to combine it with the bark, the latter being of a much more antiseptic nature. They were first given in decoction, and afterwards in substance, as soon as the stomach could digest them. Yet, in several cases, the bowels were so irritable, that, notwithstanding the use of opiates, the medicine was speedily carried off by stool, and the patients, in a manner half corrupted, fell victims to the disease.

Since that period, I have given the bark in the dysentery, in the Straits of Malacca, and at China, in the year 1771, and also in the dysenteries which have occurred in England, without producing any good effects. It seemed on the contrary often to aggravate all the symptoms, and was never attended with the least advantage till the disease was overcome, and nothing seemed to be wanting to complete the cure, except bracing the relaxed intestines.

S E C T. III.

OF THE COMMON METHOD OF TREATING THE
DYSENTERY.

IN the early stage of the dysentery, in my voyages to the East Indies, I found the following method of cure most effectual. First of all, the emetic powder, N^o. 18, was prescribed, which seldom failed to operate powerfully, and generally relieved both the stomach and bowels.

Next morning, I gave the prescription, N^o. 20, or 21; and, unless the pain of the bowels and tenesmus abated, one of these purges was repeated for the four following days, in such doses as to keep up a free discharge by stool. During this course, the opiate, N^o. 23, was taken every night at bedtime. But, when the irritation in the rectum was violent, emollient and anodyne glysters gave more relief. For this purpose, I directed six ounces of a decoction of linseed, or starch, with forty or fifty drops of tincture of opium, to be injected.

If the disease continued longer, and it appeared to be necessary to restrain the
purging,

purging, I gave small doses of ipecacuanha and opium, having recourse to laxatives from time to time, if the gripes returned.

In the Bengal dysentery, the same method was followed, only, when the disease was accompanied with fever, the decoction, N^o. 19, generally answered better than the emetic powder: and, in most cases, it was found indispensably necessary, both to prevent putrefaction, and to reduce the fever, to use the evacuating method alternately with the decoction of bark, N^o. 25.

Any other method of cure I always found very ineffectual; and, unless the fever or symptoms of putrefaction demanded the intermediate use of other remedies, considerable ground was lost by omitting the purgatives for one day. These continued evacuations may, at first sight, appear hard in a disease attended with symptoms of putrefaction and great prostration of strength; yet certainly every one acquainted with the matter will readily allow, that a continual fruitless straining, and painful tenesmus will weaken the patient more in twenty-four hours, than
three

three or four easy motions, procured in the same time by a gentle cathartic.

If the dysentery attack with vomiting and irritability of stomach, the same remedies must be applied as directed, for these symptoms, in the remittent fever*. When the griping and pains in the bowels are very severe in the beginning of the disease, fomentations, the warm bath, and a large blister to the abdomen, are of the utmost consequence, not only, to assuage the torment of the patient, but also to obviate inflammation, which, in the worst cases, is very apt to end speedily in gangrene.

The regimen ought to be much the same, as that already recommended in the remittent fever. And, when the disease is accompanied with putrid symptoms, nothing will be found to answer better than ripe fruits. In the dysentery at Bengal, when these could not be procured for the common sailors, I have, with great advantage, added vinegar to the drinks, and never found that this acid increased their gripes.

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But

* See page 182 and 183.

But when the disease continues long, and the patient begins to recover, both ripe fruits and vegetable acids should be given sparingly, as they are then apt to bring on a return of the disorder.

The food should consist of smooth farinaceous substances, such as rice-jelly, (called in India Congee) water-gruel, sago, or salep, to which wine should be added, even freely when necessary, to support the strength of the patient. The most proper drinks are barley water, thin rice gruel; and, when the gripes are severe, and demulcents indicated, almond milk*, or the decoction of starch, N^o. 26.

Through the whole course of the disease, the air ought to be kept cool and pure, particularly on board of ship, where many patients are often crowded together; for, unless the sick birth be frequently washed, fumigated, and sprinkled with vinegar, it will be in vain to think of removing the disease or to prevent it from becoming general, by the most powerful remedies given internally.

In the convalescent state, the patient should abstain from all animal food, except
light

* Lac Amygdalæ Ph. Lond.

light soups. But when the bowels have, in some measure, recovered their tone, a moderate use of such flesh meats as are the least stimulating, may be allowed: and, for the patient's greater security, a dose of the infusion of the peruvian bark, N^o. 7, or colombo, N^o. 27, should be taken twice or thrice a day.

When the strength is, in some measure, restored, the use of the cold bath, gentle exercise in a carriage, but particularly a change of climate*, are the most effectual means to confirm the cure.

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S E C T.

* Convalescents, after a fit of sickness in Bengal, would often be restored to health by a voyage to the coasts of Malabar or Coromandel. Those who continue valetudinary at Madras often recover their usual health by a short residence at China; or, instead of this, they might go to Bengal during the pleasant and healthy months of December, January, and February. The gentlemen reduced by fluxes at China, may take a voyage to St. Helena, or the more delightful settlements of the Dutch at the Cape. Such shifting of climates would save many lives, and may be put in practice when a return to Europe would be very inconvenient.

S E C T. IV.

OF THE TREATMENT OF OBSTINATE DYSENTERIES
BY MERCURY.

SUCH was the method of treatment I pursued in recent dysenteries, in my voyages to India; which, indeed, only differed from the practice of authors, at that time, in administering gentle purgatives *daily*, till the distemper began to yield. But, when the flux was neglected in the beginning, the recovery of the patient became precarious, and all the medicines, I was then acquainted with, afforded little more than mere palliation.

Since that period, I have often found the dysentery, in this country, too obstinate in its nature to yield to such simple treatment, even when called early in the distemper. The insufficiency of the established practice, after the complaint is confirmed, has, indeed, been acknowledged by those most conversant in the
dis-

disease *; and, when it is considered, that inflammation and ulceration so often affect the intestines, it is not surprising that the feeble means, hitherto proposed, have, in such cases, so generally proved ineffectual.

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For

* Dr. Cleghorn observes, “ That almost all the dysenteries
 “ which fell under his observation, unless they were speedily
 “ cured in the beginning, at best proved obstinate, and too
 “ frequently fatal, in spite of the many boasted specifics for
 “ this distemper.” *Diseases of Minorca*, page 228.

The candid Dr. Donald Monro also observes, “ Upon my
 “ first being employed in the military hospitals in Germany, I
 “ was surprised to see so many of the old dysentric cases end
 “ fatally; and imagined I had not fallen upon the right
 “ method of treating them: but upon consulting the other
 “ physical people employed in the same service, I found them
 “ as unsuccessful, as myself, after having tried a variety of
 “ remedies: and at last, I was convinced, that the disorder
 “ will often end fatally, notwithstanding the use of what
 “ are esteemed the most efficacious remedies, when once it has
 “ continued long, and injured the structure of the intestines to
 “ a certain degree; and that, when this disorder is violent,
 “ the cure principally depends upon an early and speedy appli-
 “ cation of proper remedies, before the strength be exhausted,
 “ or the structure of the bowels too much hurt. The bad
 “ success we had in treating these old cases, may, perhaps,
 “ surprise those who have never practised except in healthful
 “ cities, where the disease is commonly mild, and people apply
 “ soon for advice. But all those gentlemen who have had the
 “ care of military hospitals, where the dysentery has been
 “ frequent, and where the sick have often been sent a great
 “ way, before they reached the hospitals, must be convinced
 “ of the truth of what is here asserted.” *Observations on the
 means of preserving the health of soldiers*. Vol. I. page 336.

For several years past, when the dysentery has resisted the common mode of practice, I have administered mercury with the greatest success; and am thoroughly persuaded it is possessed of powers to remove inflammation, and ulceration of the intestines, which are the chief causes of death in this distemper.

In the year 1781, the dysentery was introduced into a dock-yard, in this neighbourhood, by some sailors who returned from abroad ill of the complaint. The disease soon spread amongst the workmen, and several died. I was sent to visit a person, who had laboured fourteen days under the disease, and had taken the usual medicines, without ever procuring the least relief, or occasioning one feculent evacuation. In spite of every remedy, he died in a few days. I visited several others, who had been also treated unsuccessfully in the usual manner; and prescribed from five to ten grains of calomel, with one or two grains of opium, every night at bed-time, with the occasional use of a saline purgative. In a few days the bowels were opened, and the most threatening symptoms were soon removed. To those in the chronic stage, small

small doses of calomel, with opium, were given every night; and sometimes in the morning, with a purge at proper intervals; and all whom I attended recovered, except one patient, whose liver was much enlarged, and in a state of suppuration when I first visited him.

In autumn 1783, the dysentery was epidemical in Newcastle and its neighbourhood. I was called to several cases in private practice, which had resisted the common treatment; and attended sixty patients belonging to the Dispensary. Calomel, in almost every instance in which it was exhibited, soon subdued the disease, or reduced it to the nature of a simple diarrhœa.

In the following autumn the dysentery was again prevalent. The same remedy was tried, in obstinate cases, and every patient recovered.

Although, in the above instances of epidemic dysentery, the superior efficacy of calomel seemed to be established, yet I was still in doubt whether to impute its virtues to its purgative, or to its mercurial quality. But in the autumn of the year 1785, the dysentery again made its appearance, and was attended, in many patients, with

so great irritability of the stomach, that the common purgatives were immediately rejected. To two patients, in this situation, I gave three grains of calomel, conjoined with opium, every four hours, which in both allayed the vomiting. By an inconsiderable quantity of mercury, the gums became tender: in consequence of which, the gripes and tenesmus were instantly relieved; natural evacuations followed; and health was speedily restored, without the assistance of any other medicine.

Being now thoroughly convinced of the advantages resulting from calomel as a mercurial, I gave it more freely during the course of the epidemic, and also recommended the practice to all my medical friends, in this neighbourhood. All of them have concurred in observing, that, they were much more successful than formerly; and that generally, as soon as the medicine occasioned the slightest tenderness of the gums, the distemper was either speedily removed, or became extremely tractable.

In prescribing mercury, in the dysentery, the Physician will be at the same loss with respect to the quantity, which may be requisite to affect the system, as he is in
other

other complaints. In some patients twelve grains of calomel, in divided doses, will bring on slight symptoms of salivation. The majority, however, in this country, will bear from twenty to thirty grains; and, in a few instances, it has been found necessary to persevere in its use, along with purgatives, till one dram or more has been taken.

The dose of calomel, in the early stage of the dysentery, should be always adapted to the violence of the distemper. In the beginning it ought to be given from five to eight or ten grains, with a sufficient quantity of opium to procure an alleviation of the gripes; and, after a few nights, the quantity should be diminished. In the acute stage, a saline purge should be occasionally administered, with a view to carry off acrid corrupted humours; and, if it operate freely, it will generally afford the greatest relief: but, in very obstinate cases, the disease will seldom abate much of its violence, till some degree of tenderness be perceived in the mouth. At the same time, however, care must be taken not to bring on any considerable degree of saliva-

salivation, which will always prolong the recovery.

In the acute stage of the disease, I have always preferred calomel to every other preparation of mercury, on account of its laxative properties; and to render it more certainly so, and likewise to determine it to the surface, I at first combined it with a small portion of tartar emetic*. But in my latter practice I have generally added no other medicine to it, except opium.

In the chronic stage of the disease, in which the patient is always considerably debilitated, a salivation ought to be carefully avoided. Calomel should, therefore, be only given, in small doses, as an alterative, conjoined with opium. And if it still, with such an addition, prove too laxative, from two to four grains of crude quicksilver, extinguished with mucilage of gum arabic, ought to be substituted. In this state of the disease a pill, composed of one grain or two of ipecacuanha, and half a grain of opium, with a sufficient quantity of conserve of roses, should be taken every morning, with the occasional use of
rhubarb,

* Antimonium Tartarifatum, Ph. Lond.

rhubarb, demulcents, absorbents, or colombo, as may seem to be indicated.

But, with a view to illustrate this subject more fully, I shall subjoin the following histories, which, it is hoped, will convey some idea of the great obstinacy of the dysentery in particular seasons; and also place the merit of the treatment by mercury in a proper light.

CASES OF THE DYSENTERY TREATED WITH
MERCURY.

C A S E I.

WILLIAM DIXON, aged 37, who had laboured under the dysentery for nine days, was admitted to the Dispensary on the 2d of August, 1785. The gripes were intolerably severe, the evacuations painful, and very frequent; and, for above a week, he had passed nothing except mucus tinged with blood. In the evening the calomel pills, N^o. 24, were prescribed; and he was ordered to take one immediately, and the other in an hour, drinking with the latter barley water, or thin gruel to encourage their operation. At bed-time he took an opiate.

August

August 3d. He vomited once, and had three excrementitious evacuations after the pills began to operate; which mitigated his pain for two hours. But, soon afterwards, his complaints recurred with greater violence; and he had a fruitless motion to stool every hour through the night. An antimonial emetic was prescribed, and five grains of calomel, with two grains of opium at bed-time. He was also ordered to take the purgative, N^o. 20, on the following morning.

4th. He rested well from ten o'clock last night till four this morning, and had one easy motion before he took the purgative; which also operated five times. The gripes and tenesmus returning in the afternoon, with great violence, the calomel and opium were repeated.

For three nights longer he continued the calomel and opium, and took the saline purgative occasionally; by which means the disease was reduced to a simple diarrhœa; which was soon removed by small doses of ipecacuanha and opium; and two or three doses of rhubarb.

C A S E II.

MARY LAIDLER, aged 23, was admitted to the Dispensary on the 24th of August 1785. She had been afflicted with the dysentery for four days; and complained of great pain in her bowels, constant griping and tenesmus; and evacuated nothing but mucus tinged with blood. Her pulse beat 112; she was very thirsty; her head ached; and she had hot and cold fits alternately. The calomel pills, N^o. 24, were given as in the former case; which vomited her twice, and produced two feculent evacuations. At bed time an anodyne was prescribed; and in the morning a dose of salts.

August 25th. She vomited the salts in the morning, and continued in great pain through the whole day. Six grains of calomel, with two grains of opium, made into pills with conserve of roses, were ordered at bed time.

26th. She had a tolerable night, but the gripes and tenesmus returning in the morning, the saline purgative was given, which her stomach retained, and during its operation, gave great relief: but soon after-

afterwards the painful symptoms recurred with their former violence. The calomel pills with opium were repeated at bed time.

Notwithstanding the frequent repetition of purgatives, her disease did not yield till the first of September, when she had taken half a dram of calomel. Her mouth then became tender; the gripes and tenesmus left her; and her stools, which were of a green colour, were evacuated with ease. A gentle salivation continued to the 7th of September; her evacuations became natural, and she seldom passed more than one stool in the twenty-four hours.

On the 14th of September, after some errors in diet, she had a return of the gripes and tenesmus, which were removed by one dose of calomel and opium. On the following morning she took a dose of salts. An opiate was continued at bed time, for some nights longer; and, on the 17th, she was dismissed, being perfectly cured.

C A S E III.

ELIZABETH LAIDLER, aged 17, the sister of the former patient, was seized with

with the dysentery on the 23d of August. The symptoms being very violent, the calomel pills, with emetic tartar, were prescribed: and, as her disease was so recent, she took nothing more for some days, than an anodyne at bed time, and a saline purge occasionally in the morning. Her complaints becoming worse, on the 27th, she was directed to take two pills, with eight grains of calomel, and two grains of opium, at bed time.

August 28th. The gripes and tenesmus being severe in the morning, the saline purgative was prescribed, which gave two feculent evacuations. But in the afternoon all her complaints were again aggravated, and she passed twelve small slimy stools, some of them variegated with green and yellow, and some tinged with blood. Three grains of calomel, with half a grain of opium, were directed to be taken every four hours, and one scruple of Dover's powder at bed time.

On the 29th, I did not visit her: but she was better than formerly, passed three excrementitious stools in the day, and had a good night.

On

On the 30th, the gripes and pain of her bowels returning with violence, the saline purgative was repeated; and as it only afforded temporary ease, five grains of calomel, with one scruple of Dover's powder, were given, in the form of a bolus, at bed time.

September 1st. Having taken twenty grains of calomel, since the 28th ult. she, this day, complained of her mouth; but said that her bowels were totally relieved. From this time she had one or two feculent evacuations daily. On the 7th, her mouth was quite well. She had no return of the dysenteric symptoms after her mouth became affected, nor had occasion for any other medicines, except an opiate at nights; and a dose or two of rhubarb. On the 17th of September, her health being established, she was dismissed.

Her brother was also violently attacked with the same distemper, which was removed, in a few days, by taking every night calomel and opium, with the occasional use of laxatives. Her mother likewise was seized with the dysentery, but in a milder form, which soon yielded to the common treatment.

C A S E

C A S E IV.

CHRISTIAN HALL, aged 21, from lying in the same bed with a child who had the dysentery, caught the disease on the 20th of August. On the 22d, the apothecary of the Dispensary prescribed the calomel pills with emetic tartar, and on the following morning the saline purgative.

August 23d. I first visited her. She was feverish, and had received nothing but temporary relief from the above medicines; the gripes, tenesmus, and fruitless attempts for an evacuation being still exceedingly urgent. Eight grains of calomel, with one of opium, were given at bed-time, and the purgative was ordered to be again taken in the morning.

24th. She had four feculent evacuations; but in the afternoon all her complaints returned. A dose of Dover's powder was given at bed-time. And five grains of calomel, and one grain of opium were directed to be formed into four pills, one of which was ordered to be given in the

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morn-

morning, and to be repeated every four hours.

These pills she continued regularly till as many were **taken** as contained fifteen grains of calomel. Her disease then yielded. Her stools became natural, and she was in a constant uniform perspiration. On the 24th of September, being free from all complaints, she was dismissed.

C A S E V.

WALTER LEWANS, aged 50, was seized with the dysentery, which he caught from lying in the same room with his wife, and three children, who were ill of the distemper. On the 26th of August, being the second day of his confinement, I visited him; and as his disease was very violent, he was ordered the calomel pills, with emetic tartar, N^o. 24; and half a dram of Dover's powder at bed-time.

August 27th. The pills having occasioned no evacuations, the saline purgative was given in the morning, which procured a few stools, and, during its operation, some abatement of the gripes and tenesmus.

But

But in the evening, when I visited him, he was in great torment from the pain in his bowels, and from a continual desire to go to stool, passing nothing but bloody mucus. Fomentations were directed to be applied frequently to his bowels: and Dover's powder, with five grains of calomel, in a bolus, was prescribed at bed-time. Two ounces of Epsom salts, dissolved in a pint of water, were also ordered to be given in the morning, in divided doses.

28th. The gripes and straining were almost constant last night. This day he passed several green slimy stools, with the salts; but without much abatement of the symptoms. An anodyne glyster was exhibited, which was immediately rejected. The bolus was repeated at bed-time.

29th. All the symptoms continued equally severe. He had scarcely a moment's respite from the close-stool, but passed nothing, except ragged mucous filaments, tinged with blood. The fomentations giving no relief, and a hiccup being urgent, a blister was applied to the abdomen. Ten grains of calomel, and two grains of opium were made up into four soft pills, with a little conserve of roses,

one of which was directed to be given every four hours.

30th. He was something easier. Having had no feculent stool, eight grains of calomel, with one grain of emetic tartar were ordered at bed-time, and a dose of Epsom salts in the morning.

Sept. 1st. He had three feculent stools; but the gripes, and tenesmus soon recurred with their former violence. Two grains of calomel and a quarter of a grain of opium were prescribed every four hours; with the decoction, N^o. 26, for common drink.

On the 4th, his mouth became a little affected with the calomel. The gripes and tenesmus left him, and his stools continued natural for this and the following day. But on the 6th of September the griping and tenesmus, and the bloody mucous stools returned. A dose of salts was given which procured larger feculent evacuations than formerly.

After this small doses of ipecacuanha and opium were prescribed, with a purge occasionally; and Dover's powder at bed-time. Sometimes his evacuations were natural and voided with ease; sometimes the contrary, and attended with great tenesmus.

nesmus. Purgatives seemed to be attended with no advantage; and glysters gave no relief to the tenesmus as they were instantly rejected. His mouth was still a little tender from the mercury: he took his food better, and the hickup had disappeared. The pills, with ipecacuanha and opium, were continued; and he was ordered the fuet decoction*, with a view to sheathe the intestines.

On the 15th of September he had recruited some strength; and had got free of all the painful symptoms, except the tenesmus, which was now attended with *prolapsus ani*. His mouth being quite well, five grains of calomel were again given at bedtime, for two or three nights in succession. After this, his complaints were so much mitigated, that glysters could be retained: from a state of great weakness and emaciation, he was gradually restored to health, and was able to return to his work on the 8th of October.

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C A S E

* Take two ounces of fresh fuet, and a pint of new milk, set them over a slow fire, and keep stirring them till they boil; then add a spoonful of starch finely powdered, and let them boil together,

C A S E VI.

As the dysentery, in autumn 1785, was, in several instances, complicated with a low remittent fever, the following history is introduced with a view to shew the application of the practice to such cases.

GEORGE HENDERSON, aged 18, was admitted to the Dispensary, on the 30th of August 1785. He had been feverish for eight days, complained of universal pains; thirst; head-ach; slight rigors, and severe gripes and tenesmus, although he passed only two jagged slimy stools daily. He was sick at the stomach, and his pulse beat 120, but feeble. The calomel pills with emetic tartar, N^o. 24, were prescribed, which vomited him four times, and occasioned six copious bilious stools, with some hardened lumps of feces. A draught with antimonial wine and tincture of opium was given at bed-time.

August 31st. He sweated profusely in the night. His pulse, this morning, was reduced to 100. The tenesmus was removed, but he was still tormented with gripes.

gripes. Five grains of calomel, with opium, were directed at bed-time, and the saline purgative, N^o. 20, in the morning.

September 1st. He had nine green feculent evacuations with the purgative: but he still complained of gripes and tenesmus. Appearing weak, three grains of calomel only, with one grain of opium, were prescribed at bed-time, for this and the two following nights.

His stools became feculent; and he only passed four or five daily. On the 4th of September he was seized with rigors: he became afterwards hot, his pulse rose to 120; and he appeared considerably debilitated. Two ounces of the decoction of the bark were prescribed every two hours, with a few drops of tincture of opium, if it seemed to run off by the bowels; and an anodyne draught was given at bed-time.

5th. He sweated during the whole night. During this day he passed eight bilious offensive stools, but without any tenesmus. The medicines were continued; but at night he was more feverish.

Next day the dysenteric symptoms totally disappeared; and the distemper now as-

sumed the form of a low fever; and was attended with nocturnal exacerbations and delirium. On the 8th of September his bowels were able to bear the bark in substance. He was supported with a cordial regimen, and took an opiate every night at bed-time. His fever was totally subdued by the 15th of the month: and he soon afterwards recovered his usual state of health.

C A S E VII.

A LADY of a delicate constitution, aged 25; subject to frequent returns of hæmoptoe, and to a sore throat attended with specks and slight ulceration; on the 2d of September 1785, was attacked with the dysentery; and in the night passed fifteen mucous evacuations, tinged with blood, and attended with severe gripes and tenesmus. A saline purgative and anodyne glyster were directed by her Surgeon. On the evening of the 3d of September, all her complaints were much aggravated, and she had a constant desire to reach. Five grains of calomel, with half a grain
of

of emetic tartar, and one grain of opium, were ordered.

September 4th. She vomited frequently after the pills, and in the night had twelve bilious evacuations, some of them larger than before: but, in the morning, she was in great torment in her bowels, and her stomach rejected every thing. Fomentations, and an anodyne glyster were ordered to give some alleviation to the pain: a large blister was afterwards applied to the abdomen; and a pill, with one grain of calomel, and a quarter of a grain of opium, and a saline draught in the act of effervescence, were directed to be taken frequently. The vomiting and painful symptoms were removed in the evening, and she afterwards passed a good night.

5th. Being still easy, but having had no feculent evacuation, castor oil was directed in the morning; but, from her not persevering long enough in its use, it had no effect. An emollient glyster was ordered to be exhibited, and three grains of calomel at bed-time.

6th. She had a tolerable night. The gripes and tenesmus being urgent, a decoction of tamarinds, with fenna and salts,
was

was prescribed, in separate draughts, this morning. The two first evacuations were excrementitious, but she afterwards had other two quite thin, and as black as ink. This alarmed me much, as I never had seen any person recover from the dysentery, who had passed stools of such a colour. Soon afterwards her pulse rose to 120; her skin became cold and clammy; and she was seized with a violent spasmodic pain in the chest. A bladder with hot water was applied to the seat of pain; an opiate was given; and the pills with calomel, as prescribed on the 4th, were ordered to be regularly persevered in.

7th. She had a much better night than could have been expected. The gripes and pains returning in the morning, a saline purgative was prescribed. She passed in the day four feculent stools, two stained with green and yellow; and two, making about the quantity of a pint, of the same black colour as before. A dose of calomel and opium was given at bed-time.

On the 8th, the gripes and tenesmus being very severe, the calomel and opium were repeated at bed-time: and, on the morning of the 9th, having considerable
nausea

nausea and tension over the whole abdomen the purgative was again given in spoonfuls; which procured several black evacuations; but the pain continued without abatement till she got her anodyne at bed-time.

For the two following days she appeared much better; her stools were sometimes natural, sometimes variegated with green and yellow, and sometimes quite black. The infusion of the bark was prescribed; but she thought it gave no relief, and, therefore, did not use it liberally.

On the 11th, the nausea, sickness, and gripes returned with violence: her stools, however, were feculent, but often black, with a greenish cast. From this time to the 17th, opium and calomel were given regularly at bed-time, with a laxative occasionally. Although she took about half a dram of calomel, her mouth was never affected. The dysenteric symptoms, however, now totally disappeared. But her recovery was protracted, by an attack of her usual sore throat; and a troublesome suppression of urine, to which she had been also formerly subject.

C A S E

C A S E VIII.

A MARRIED LADY, aged about forty, on the 27th of August 1785, was seized with the dysentery, which resisted many judicious medicines directed by the late Mr Hawdon. On the 5th of September, I first visited her. She was then so much reduced, that she could not sit up in bed. She laboured under continual nausea; vomited frequently; and complained of incessant gripes and tenesmus. She had been forced to go to the close-stool above thirty times, during the last twenty-four hours; but passed nothing except mucus tinged with blood. Her pulse beat 120; she complained of great anxiety and restlessness; and her stomach and bowels were very much inflated, and gave her great pain upon the least pressure. Her countenance was pallid; her eyes sunk; and her whole features exhibited the appearance of a person worn out with pain. She also had clammy sweats on her face and neck; slight hickup; and complained much of pain in her back and loins, attended with frequent

frequent solicitations to make urine; which was hot, and never voided except when she went to stool. In this dangerous state, a large blister was ordered to be applied to the umbilical region, after the use of fomentations; and five grains of calomel, with two of opium, were prescribed at bed-time: a decoction of tamarinds, with Rochelle salt*, was ordered to be taken in the morning by spoonfuls till it operated.

Sept. 6. The sickness and vomiting abated as soon as the blister began to operate: and she passed a better night than formerly. In the morning she had five evacuations attended with less gripes; and, after taking the purgative, she had twelve motions, some of them feculent, and some thin and bilious. In the evening her evacuations were again mucous and bloody, attended with severe griping and tenesmus. Three grains of calomel, with two of opium, were prescribed at bed-time.

7th. She rested some in the beginning of the night. In the morning her evacuations were slimy, small, and frequent; some tinged with blood, and others with green bile. The calomel and opium were repeated

* Natron Tartarifatum Ph. Lond.

peated; and the pūgative ordered to be taken in the morning.

8th. She was in an universal sweat this morning; and her pulse beat only 100 pulsations in a minute. Her evacuations were feculent and bilious; and the gripes and tenesmus were much relieved. Having now the utmost aversion to medicine, nothing was ordered except calomel and opium at bed-time.

On the 10th, her stools being very frequent and more copious, one grain of ipecacuanha made into a draught with cinnamon water and cordial confection* was ordered every four hours with a few drops of tincture of opium. Her stools being restrained, five grains of calomel were given at bed-time with fifteen drops of tincture of opium.

From this time to the 13th, she continued the calomel and opium. Her stools were generally excrementitious; but she still had the hickup, and foreness of the abdomen, upon the least pressure, and continued feverish. The infusion of bark, with tincture of opium, was prescribed. Having taken thirty-nine grains of calomel, an anodyne draught was ordered at bed-time.

* Conf. Aromatica Ph. Lond.

For the five following days she took support better, and now, for the first time, entertained hopes of recovery. Her mouth was a little sore; her evacuations were bilious and feculent, and voided with little pain.

On the 19th, her mouth was considerably ulcerated, and she was in a gentle salivation. This day she passed twenty feculent stools: as she thought the infusion of the bark increased her purging, the draughts with ipecacuanha, as prescribed on the 10th, were substituted; which soon moderated the looseness.

From this to the 6th of October, she continued to spit about one pint and a half in the twenty-four hours, when the salivation began to subside. From the time her mouth ulcerated, the painful complaints of the bowels disappeared; and, towards the end of the salivation, she had only one motion in three days. Having had no solicitation to make urine, and having voided none for a week past, one dram of dulcified spirit of nitre * was given every four hours, in a saline draught, on the 6th of

* Sp. *Ætheris Nitrosi* Ph. Lond.

of October; and on the following morning a gentle laxative. Her urine next day began to flow; the ulceration of the mouth soon disappeared; and she very rapidly recovered a state of perfect health.

None of the patients to whom I had hitherto prescribed mercury, in the dysentery, having had so much ulceration of the mouth, I was exceedingly alarmed lest a profuse salivation, in so debilitated a subject, should have proved fatal. But my fears were soon removed, as I found she daily gained more strength; took her nutriment better, and got free from the dysenteric and febrile symptoms.

C A S E. IX.

MRS —, aged 37, of a delicate make, and, for ten years past, subject at times to a profuse hemorrhage from the nose, after waiting upon a relation who died of the dysentery, on the second of September 1785, was seized with the same distemper, in a violent manner. Mr Hawdon had prescribed an emetic; saline and other purgatives, with opiates occasionally, which
had

had only procured some temporary alleviation.

On the 11th of September I first visited her. Notwithstanding the use of an opiate she had passed a bad night; and had been twelve times at the close-stool, but voided nothing except a little jagged mucus tinged with blood. Her pulse was 120; her tongue dry; her skin parched; and she complained of sickness, great pain in her bowels, of tenesmus and dysuria. Half an ounce of crystals of tartar was dissolved in a quart of barley water, for common drink; and two pills, composed of five grains of calomel and one of emetic tartar were prescribed; the first to be taken at eleven, and the latter at twelve o'clock. In the evening, when I visited her again, she had passed fifteen stools of the colour and consistence of molasses, without gripes or tenesmus, and found herself very much relieved. Six grains of calomel, and two grains of opium were directed at bed time, and an infusion of tamarinds with Rochelle salt, to be taken by spoonfuls in the morning.

On the 12th, when Mr Hawdon and I visited her, she had passed two stools

A a

as

as black as ink; and through the day had twenty evacuations of the same colour, variegated with bile. Six grains of calomel, with opium were prescribed at bed-time. On the 13th, the purgative was repeated. She vomited a considerable quantity of green bile, and had fourteen stools in the day. The calomel and opium were again ordered. She drank butter milk, and was allowed ripe fruit.

On the 14th, in the morning, she vomited three times: as she still continued feverish, with much inflation of the bowels, the purgative was repeated; which relieved the gripes and tenesmus. In the afternoon, ten grains of Dover's powder were given in a bolus, and fifteen were ordered at bed time. Two grains of calomel, with half a grain of opium, and a quarter of a grain of emetic tartar, were also prescribed every four hours.

On the 15th and 16th, her complaints were much mitigated; and her evacuations were bilious, less frequent, and excrementitious. Her pulse, however, still beat 120; she was feeble, and had no desire for nutriment. Having taken in all thirty-one grains of calomel, five grains more were prescribed

prescribed with opium, at bed-time; and afterwards its use was interdicted. Next morning a purgative was ordered.

For the two following days she had only a diarrhœa; but soon afterwards she was seized with a profuse hemorrhage from the nose: purple spots made their appearance in various parts of the body; and blood began to ooze from her gums. Next day she made bloody urine; and also passed coagulated blood with her stools, which were now of a natural consistence. The hemorrhage exhausted her much; but, being free from the painful complaints of her bowels, she was in better spirits than could have been expected. As her stomach retained every thing, lemon juice was given freely in panado and gruel with port wine. The bark was injected in the form of a clyster; and exhibited liberally by the mouth, both in decoction and substance. For two or three days, blood kept oozing from her nose, gums, or uterus; and the slightest pressure on any part of her body occasioned an *ecchymosis*. But by taking plenty of support, and the bark freely, with allum whey, every alarming symptom disappeared in a week; and she was

speedily restored to a better state of health than she had formerly enjoyed.

This is the only case which has occurred in my practice, where a dissolved state of the blood took place in the dysentery during the mercurial course, although I have prescribed the medicine to some hundreds of patients. I therefore cannot impute these alarming symptoms to the effects of calomel, but to a gradual corruption of the humours induced by a debilitating infectious disease. A history of the same nature has already been related* where the patient had not taken a single grain of mercury.

C A S E X.

RALPH BAMBORROUGH, aged 34, was seized with symptoms of colic, which terminated in the dysentery, on the 5th of September. On the 9th he was admitted to the Dispensary. His pulse beat 100; the gripes and tenesmus were very severe; and, for four days past, he had above forty fruitless efforts to stool, every twenty-four hours

* See page 292.

hours. Two grains of emetic tartar, dissolved in boiling water, were added to the saline purgative, N^o. 20, which procured twelve feculent evacuations; but, his complaints recurring with violence, six grains of calomel and two of opium were given at bed-time.

On the 10th, he had three bilious stools in the morning: he was greatly relieved, and his pulse was reduced to 84. In the afternoon the pain in his bowels became insufferable; and he was constantly at the close-stool; but passed nothing except slime and blood. The calomel and opium were repeated, which gave instant relief.

On the following morning the saline purgative was taken. But as his complaints did not yield, the calomel and opium were continued every night at bed-time, till the 13th of September. His mouth then became slightly affected, and continued tender till the 18th. From this period the gripes and tenesmus totally disappeared. He had sometimes only one natural evacuation, in the twenty-four hours, and never more than three. On the 20th of September, he was free from

every complaint except weakness; and, in a few days, returned to his labour.

One of his children, aged one year, took the complaint, with continual vomiting, griping, and tenesmus, and passed nothing but blood: being totally neglected I found her dying in convulsions on the 4th day of the distemper.

His other child, aged five, was seized also in a violent manner; four grains of calomel with opium were given every night at bed-time, with a purge occasionally; but the disease did not give way till the mouth was slightly affected: and then it became extremely tractable.

His wife was also attacked with the dysentery, which required the use of calomel; and she speedily recovered.

C A S E. XI.

DOROTHY RUSSEL, aged 23, was admitted to the Dispensary on the 8th of November, 1785. She had been afflicted with the dysentery for eight days; and her disorder had increased so much that she passed above twenty evacuations every hour,
attended

attended with severe pain in her bowels and tenesmus. Her pulse beat 120; she was very thirsty, and much reduced. The antimonial emetic, N^o. 18, was prescribed. At bed-time she took a bolus with one scruple of Dover's powder, and six grains of calomel.

Nov. 9th. These medicines had afforded much relief; and she slept till one o'clock in the morning. From that time till eight, she had twenty efforts to stool, and was in great pain in her bowels. Fomentations were directed; and the saline purgative, which procured eight large bilious feculent evacuations. In the afternoon all the former symptoms recurred with violence: her pulse beat 140, and she had continual nausea. Ten grains of Dover's powder, and two grains of calomel, were ordered at four o'clock; and five grains of calomel, with two of opium at bed-time.

10th. She was tolerably easy in the beginning of the night; but all her complaints returned after the effect of the opium was over. One grain and a half of calomel were ordered to be taken every four hours. When she was visited at four o'clock in the afternoon, she was still very

feverish, much griped, and had passed thirty-two stools during the last twenty hours, which contained nothing except blood and mucus. One scruple of Dover's powder, with four grains of calomel, was ordered at bed-time, and a dose of salts in the morning.

11th. Her pulse beat 140; the nausea, gripes, and tenesmus were very severe; and the salts scarcely afforded temporary relief. Fomentations were ordered to the abdomen; and afterwards a large blister. An anodyne clyster was administered at four in the afternoon, and the calomel and opium at bed-time.

12th. She was easier in the night. Through the day, she passed ten stools as black as ink, with less pain than formerly; but her pulse still continued to beat about 140 pulsations in a minute. She was feebler, and had some hickup. The anodyne clyster was given in the afternoon. She had now taken twenty-nine grains of calomel; but as it had not in the least affected her gums; and as she was now so weak as to be able to take little medicine, I was determined to persevere in the use of mercury, and to support her strength with
smooth

smooth panado, rice jelly and wine. Five grains of calomel, with two of opium, were therefore given at bed-time.

13th. She was at stool every five minutes in the night; and was continually harrassed with the hickup, and nausea. Her pulse, in the morning, beat 128. Her bowels were inflated, and sore upon the least pressure; her face was clammy, and her extremities were cold at times. As she was much griped, whilst I remained in her room, I persuaded her to take the salts. In the afternoon her complaints were not relieved. The anodyne clyster was given at four in the afternoon; and the calomel and opium at bed-time.

14th. The symptoms, in the morning, were the same as yesterday. She had fourteen mucous bloody stools in the day. The gripes, in the afternoon, were less severe. Having taken thirty-nine grains of calomel, and her mouth being tender, it was omitted, and an anodyne prescribed at bed-time.

15th. She was easier this day. Passed twelve stools, some of which were feculent. The anodyne clyster was given at four o'clock

o'clock in the afternoon, and four grains of calomel with opium at bed-time.

16th. Her pulse beat 128, and was stronger; she had eight stools during the last sixteen hours, most of them feculent, and intimately mixed with green bile. She also was in an universal warm sweat. Her mouth being very little affected, the calomel and opium were repeated at bed-time.

For the six following days, as there still remained considerable tension of the abdomen, and some degree of hickup, the calomel was continued; sometimes to the quantity of four, and sometimes only three grains at bed-time. On the 22d, having taken, in all, seventy grains of calomel, and her mouth being sore, it was laid aside. Her stools, were now commonly feculent, but sometimes mixed with a little mucus, and sometimes tinged with bile. She was generally in a moderate perspiration, and her pulse subsided to 100. Her appetite began to return, and she shewed signs of a slow recovery.

On the 22d, as she complained of a cough, and general rawness in the throat and stomach, the spermaceti emulsion, with

with some mucilage of gum arabic, was prescribed. The opiate was continued at bed-time; and one grain of ipecacuanha, and a quarter of a grain of opium, given every four hours in a pill.

On the 27th, her mouth was perfectly well; but she had three or four stools daily, sometimes with slight gripes, till the 22d of December, when the diarrhœa was totally subdued. After this she rapidly recovered her strength; and was dismissed, in perfect health, on the sixth of January.

The preceding cases I have purposely selected from the epidemic of 1785, because the dysentery was, in that season, more obstinate, in general, than it has ever occurred in my practice. I also attended the Dispensary patients twice and sometimes thrice daily, to note down the symptoms, and the effects of the medicines. Mr Wilkie, the Apothecary to the charity, paid also uncommon attention to see the plan of treatment carried punctually into execution; and entered his observations on the letters of admission. Of thirty-one
obstinate

obstinate cases of dysentery admitted under my care, to whom mercury was given, I did not lose a single patient.

But in private practice I was not so successful. For I lost two patients to whom mercury was given. The first, indeed, had a mortification of the bowels, and died three days after I visited her, being the eighth day of the distemper. The other patient I visited on the second day of the dysentery; she punctually complied with every direction; but passed stools as black as ink early in the distemper; and, on the fifteenth day, died of a mortification in the bowels. She took forty grains of calomel, which had no apparent effect on the gums, or general system.

To illustrate the application of this practice, to the chronic stage of the dysentery, I shall here introduce the following case, where the disease was contracted in India: and, from my experience in this country, I am induced to conclude that mercury will seldom fail, except the intestines be deeply ulcerated, or a consuming hectic formed.

CASE

C A S E XII.

DAVID HOLLIDAY, a seaman, aged 40, in the autumn of 1781, was seized with the dysentery, whilst he served on board the *Magnanime*, off the island of Ceylon. His complaint was tedious, and obstinate; and he remained two months at the naval hospital at Trincomalie before he recovered. On his passage from the Cape of Good Hope, in April, 1783, he was again seized with the dysentery, which continued with severity till he arrived in England in the end of May following

On the 14th of October, 1785, he was admitted to the Newcastle Dispensary. He was then very much emaciated; his complexion was fallow; and considerable fullness was observable in the region of the stomach. From the time he was attacked with the dysentery off the Cape, he said he had never been free from the complaint for one month at a time; and that he seldom of late had been free from it for one day. His evacuations were small, and rarely exceeded six in number, in one day

day; but were generally attended with very severe gripes, and with much slime and blood. Two grains of calomel and two of opium, were prescribed every night at bed-time; and one grain and a half of ipecacuanha, with one dram of crystals of tartar, every morning in the form of a bolus.

When he had taken sixteen grains of calomel, his mouth became a little tender; and he had only one easy motion daily. The calomel was now only repeated every alternate night.

His mouth getting quite well, and the dysenteric stools recurring, the calomel was again repeated every night; and as his colour and strength appeared better at every visit, it was persevered in till the 13th of November, when he had taken in all thirty grains. The opiate was continued at bed-time, and the decoction of bark was prescribed.

He continued free from every dysenteric complaint for fourteen days; and, having almost recovered his usual strength, no farther medicines were thought necessary.

On the 29th of December, having caught cold, he had a slight diarrhœa, which he
would

would have paid no regard to, had he not been desired to come to the Dispensary on the slightest return of the complaint. An opiate was ordered every night at bedtime, and two grains of ipecacuanha in the morning; which speedily removed the looseness. Several months after this I saw him in perfect health, without having experienced the least relapse.

Although mercury had not been proposed for the cure of the dysentery when I was last in India, yet it appears that, soon afterwards, its efficacy was confirmed in this disease*. But, having had no correspondence

* Dr Bogue, of Titchfield, who had been at Calcutta in the year 1757, and communicated some ingenious observations which appeared in the first edition of Dr Lind's *Essay on the diseases of hot climates*, which I regret was not published before I set out upon my first voyage, revisited India in the year 1772, where he had, for three years, the superintendence of the naval hospitals. He remarks, when he was last there, that mercury was more in use than formerly on the coast of Coromandel, and "That in bilious fluxes, when the common remedies failed, it was used with great success, either by unction, or internally; obstruction in some of the viscera being then supposed to be the cause of the disease. Fluxes of long standing were seldom cured

dence with my acquaintances, in that part of the world, this circumstance did not come to my knowledge till the year 1787, when *An Essay on the efficacy of mercury in the cure of inflammatory diseases, and the dysentery*, appeared in the London Medical Journal, by the ingenious Dr. James Lind, of Windfor*. The

cured without it.”—See *Dr. Lind’s Essay on hot climates*, 4th edition, published in 1788, page 99.

“ * One of the most useful purposes for which mercury has been given is, that of curing dysenteries—a practice which has been lately followed with the greatest success on the Coromandel coast. It was first made known to the different surgeons in the Carnatic by a letter sent to each of them from the late Mr Paisly, first surgeon of the Presidency of Madras.

Their method is as follows :—As soon as the patient begins to complain of symptoms of dysentery, they give him repeatedly small doses of emetic tartar till it operates upwards and downwards, and thoroughly clears the stomach and bowels; after which they begin to give mercury combined with ipecacuanha in the following form :

R. Argenti Vivi scrupulum,
 Pulv. gum. arabic. scrupulos duos,
 Aq. puræ q. s.
 Tere in mortâr. marmor. ad perfect. extinct.
 globulorum, et adde
 Pulv. rad. ipecacuan. drachmam
 Fiat massa dividenda in pilulas ix., quarum capiat
 unam, tertiâ vel quartâ quâque horâ.

This medicine they use till the urine, which in the beginning is high coloured, becomes pale, which they look upon as a sign
 of

The dysentery, on the coast of Coromandel, is far less prevalent than in other parts of India; and, when it appears, is often supported by a diseased state of the liver. This no doubt gave the idea of the propriety of exhibiting mercury; and, if I might venture an opinion, the quantity of this mineral, contained in the pills used on that coast, is only calculated for the removal of such symptomatic dysenteries. Those of an acute and speedily dangerous nature, in other parts of India, will require a more active preparation.

B b Doctor

of the disease being subdued; after which a few opiates, and some small doses of rhubarb, mixed with absorbent powders, generally complete the cure.

During the course of the disease, they do not neglect to administer emollient and starch clysters; and on the Malabar coast, where they had not in 1780 got into the practice of using mercury in the cure of dysenteries, if the patient had much griping, they put a blister upon the belly, which, they were of opinion, likewise prevents inflammation and mortification, the symptoms most to be apprehended in this disorder.

It is probably from mercury preventing inflammation, and consequently mortification, that the above practice is successful. Mr Wilson, an ingenious surgeon in the service of the Hon. East-India Company, told me, when at Pondicherry, that he had seldom lost above two men in a year by dysenteries in the battalion of seapoys to which he was surgeon, since he became acquainted with the practice of using mercury in this complaint: whereas before that he frequently lost in the battalion from twenty to thirty men by dysenteries in a sickly season." *London Medical Journal*, Vol. 8. p. 153.

Doctor Balfour, who for many years resided in Bengal, has given calomel, in the acute dysentery, in the same manner as recommended in the preceding pages *: and, although our respective theoretical opinions may be very different, yet I am happy that the practice I have proposed in the former † as well as in the present edition of this work is confirmed by that of so ingenious a Physician.

But, although mercury, it is presumed, will be found of the greatest use in obstinate dysentery in every part of the world, yet there is a case of this distemper, to which the practice is not applicable; I mean

* Dr Balfour's practice in the dysentery, after cleansing the stomach and bowels by an infusion of tamarinds, with emetic tartar and manna, is to give eight grains of calomel, with two grains of opium, at bed-time, on the first day of the disorder, and to continue them for four or five nights following, or longer, if the nature of the stools should require it: and to repeat the same quantity of calomel and opium, at any time in the course of the disease, when judged requisite. He at the same time gives in the morning a saline purgative, or castor oil, till the disease begin to yield. See his *Treatise on putrid intestinal remitting fevers*, published 1790, page 142 et seq.

† Without any knowledge of each other, and consequently without any communication of sentiments, Dr Balfour gave the bark as liberally in the remittent fever of Bengal in the year 1769, as I had done the preceding year, without regard to intermissions.

mean when the disease is complicated with the scurvy. And to guard the unexperienced Physician from giving mercury to any patient until the *scorbutic diathesis* be removed, I must recal to his memory what happened to the imperial army in Hungary. “ Four hundred of the troops who were “ afflicted with the scurvy near Belgrade,” says the experienced Kramer, “ having “ taken mercury without my advice, the “ dreadful consequence was they all died “ in a salivation * !”

B b 2

C H A P.

* See Kramer's *differtatio epistolica de scorbuto* 1737 : or the analysis given of it by Dr Lind in his treatise on the scurvy.

C H A P. IV.

OF THE SUCCESS OF THE PRACTICE IN THE
REMITTENT FEVER AND DYSENTERY.

TO narrate cases so far only as they may serve to illustrate any proposed method of treatment, will tend very little to improve the science of medicine. This alone can be effected by relating, with candour and fidelity, the unfortunate as well as the favourable events. I shall, therefore, proceed to give a short detail of the success, which attended the practice in the remittent fever and dysentery, during my two voyages to India.

In the collection of cases on the remittent fever, I have inserted all those which terminated fatally.

When the second case * occurred, although I had given the Peruvian bark to several patients, when no remissions of fever could be procured, yet, at that time, I had not sufficiently experienced its safety in

* See page 192.

in continued fevers unaccompanied with symptoms of putrefaction. Every other method was tried, and the case proved unsuccessful. In the two other cases, N^o. III. and XII*, the patients had such an aversion to the bark, that they could not be brought to use it. From all these cases it appears how little dependence can be put upon any other method of treatment.

The case, N^o. VI †, points out the dangerous consequences of neglecting proper evacuations in the beginning of fevers, in unhealthy situations; and, at the same time, shews how necessary they are to prepare the patient for the cure by Peruvian bark.

Before the case, N^o. XVII, occurred, from the great success of the practice, I was almost led to believe that the bark, when timely exhibited, was a certain remedy in the cure of fevers in hot climates. Although a few unfortunate events can never detract from the general success of any treatment, yet, they ought to repress human pride, and oblige us to acknowledge

B b 3 the

* Page 196 and 223. † Page 235.

the inefficacy which too frequently attends medicine in almost every disease.

As it has been my endeavour merely to represent facts, I shall draw no farther conclusion from the cases; but must add that I have given the bark to one hundred and fifty patients in fevers, at Bengal and other places in the East Indies; and, of that number, lost only one who took the medicine with perseverance.

Amongst a number of patients, afflicted with the Bengal dysentery, I lost four. Two of them were much reduced by preceding fevers before I visited them. Another, having the greatest aversion to every purgative, was prescribed small doses of ipecacuanha. The bark and every other medicine, which had been then recommended, was tried, but all to no purpose; and he died on the forty-second day of the disease.

In my second voyage I attended fifty-eight persons in the dysentery on board the Talbot; and in other ships at China. They all recovered by the method of treatment already laid down in the chapter on the dysentery: but, it is proper to observe, that I had the management of the patients from

from the very beginning, and of course had time to make the necessary evacuations before their strength was reduced.

I shall conclude with giving an account of the mortality, which happened in all the ships which were stationed at Bengal in 1768, with a view to shew the comparative success of different management.

The Surgeons, who belonged to the ships, used bleeding in the beginning of all fevers, and never prescribed the bark except in distinct remissions. The small quantity, indeed, carried out from England, put it out of their power to give it freely.

One of the ships sailed from England in January, 1768, and arrived at Culpee the 24th of June. Although she left Bengal in the beginning of September, during the rage of sickness, of the ship's company, which consisted of one hundred and nine men, eight died at Bengal, and three during the voyage.

Another ship, with one hundred and thirteen men, although the sickness was not prevalent on board, lost seven in August and September; and during the voyage seven more died.

Another ship, with one hundred and eight men, lost ten during the sickly season at Bengal, and four in the voyage.

The Salisbury, with one hundred and three men, from anchoring at a little distance, and the commanding officer allowing no intercourse with other sickly ships, remained remarkably healthy. Two of her men only died at Culpee, and two more during the voyage.

Another ship, with one hundred and seventeen men, lost thirteen at Bengal, and four during the voyage.

The Ankerwyche lay at Calcutta, and only one man died. Next year she was anchored at Culpee: the ship's company consisted of one hundred and one men; although she sailed on the 17th of October, thirteen died at Bengal; and eight during the voyage.

Of all the ships which were at Culpee, the Dutton and Talbot agreed in most circumstances. They remained there during the sickly season; and were equally visited by diseases: they were much about the same time out at sea; and were off the Cape of Good Hope in the same stormy weather. The crew of the Dutton consisted

sisted of one hundred and seventeen men : sixteen died at Culpee, and twenty-four during the voyage. The Talbot had on board one hundred and eight men : eight died whilst she remained at Culpee, and three in the voyage.

In justice to the method of treatment, which has been proposed, I must observe, that, of the number belonging to the Talbot, one died of a diseased liver, and other two of the dysentery at the hospital in Calcutta. They were sent there by the Surgeon who attended in my absence. His practice was never to give the bark, except in perfect intermissions of fever ; and to use astringents early in the dysentery. The three who died at sea fell victims to abscesses in the liver, the consequences of neglected fever or dysentery.

Of eight hundred and seventy-six, the compliment of men belonging to eight ships, seventy-eight died at Bengal, and fifty-five at sea ; or nearly *one* in *six* ; a mortality, which, it is apprehended, could never have happened, had the bark been given early and liberally in fevers ; and had the dysentery been properly treated.

C H A P. V.

OF THE CHOLERA AND DIARRHOEA.

THE CHOLERA is more prevalent on the coasts of Malabar and Coromandel, than in any other part of India, on account of the excessive heat occasioning great secretions of bile, and the chilling effects of the land winds checking the perspiration, and determining the humours to the bowels.

This disease, although always violent, if proper medical assistance be given in time, seldom terminates fatally. The bilious, or other acrid matters in the stomach and bowels should be instantly diluted and carried off by large draughts of camomile tea; and clysters of tepid water. If the vomiting still continue, the patient should drink infusions of oatmeal, or powdered biscuit, toasted brown.

But the chief dependence, after the above mode of dilution, is to be placed on opium. A clyster, therefore, of eighty, a hundred, or a hundred and twenty drops of the tincture of opium, mixed in four ounces

ounces of warm water, and a little mucilage of gum arabic, should be immediately injected; and, soon afterwards, a cordial draught, not exceeding one spoonful in measure, with twenty-five drops of the same tincture, should be exhibited. And these medicines ought to be repeated occasionally, till the vomiting, purging, and cramps disappear; supporting the patient, at the same time, with warm wine and water, if the extremities become cold, or the pulse obscure.

When the cramps are severe, nothing affords more speedy relief than the warm bath. But till this can be procured, flannels, wrung out of hot water, should be applied to the bowels, and to the extremities; which afterwards should be rubbed dry, and covered with hot flannel.

After the disease is subdued, nothing farther, by way of medicine, will be required, except, next day, a dose of rhubarb; and afterwards the infusion of colombo or bark, to strengthen the bowels, if they do not speedily recover their tone.

THE DIARRHOEA, which occurs, at the different harbours in India, amongst the companies

companies of ships newly arrived, seems chiefly to depend upon a sudden change of diet. It is, however, very tractable, requiring only moderation in the use of vegetables, and fresh meat; a dose or two of rhubarb; and an opiate at bed-time. If these precautions be neglected at Bengal, in the rainy season, a simple looseness is apt to degenerate into the dysentery.

C H A P VI.

OBSERVATIONS ON THE COLIC.

THE COLIC which most frequently occurred, during my two voyages to India, either resembled that variety described by Sydenham, under the title of *bilious colic*; or that treated by various authors, under the names of *colica pictonum*, *dry belly-ach*, and *nervous colic*.

The common remote cause of the colic, as it appeared at Madras*, seemed to be owing to the sudden refrigeration of the body whilst overheated. But, as some of the worst cases occurred in persons who were employed in removing pigs of lead from the hold, I was, at first, suspicious that the symptoms were aggravated by the admission

* See Part I, page 41.

admission of some particles of this metal into the body. However, upon stricter observation and inquiries, it was found that those only, who had imprudently cooled themselves when over-heated, were liable to the violent spasmodic muscular pains, which sometimes attended or succeeded the attack of the bowels.

The principal indications of cure are to allay the reaching and vomiting; to appease the pain; and to open the bowels.

In the colic at Madrafs, when the patient was afflicted with much reaching and no great degree of vomiting, the saline purgative, N^o. 5, to which one or two grains of emetic tartar were added, was sometimes given, in the beginning by spoonfuls, which both relieved the stomach and bowels.

But, when there is much irritability of the stomach, emetics ought not to be exhibited in any form: for the only difficulty in effecting a cure is owing to the vomiting, which is with great difficulty restrained in colics of every kind. The safest plan, therefore, is to unload the rectum by a purgative clyster; and, when there is much sickness, to administer, afterwards, opium
in

in another small clyster, as ordered in the cholera *. When by this method the stomach is, in some degree, quieted, the lenient purgative, N^o. 5, or N^o. 6, or castor oil is to be given by spoonfuls till the bowels be sufficiently opened.

In very obstinate colics, purgative medicines, in a liquid form, are rejected as soon as taken; in this case the greatest advantage often results from giving calomel and opium, a practice which I have followed for eighteen years past. My usual dose consists of ten grains of calomel, and two of opium, made up into three small soft pills, with conserve of roses. One of these ought to be given every half hour, or oftener, till the sickness and pain abate. And soon afterwards one of the purgatives, already mentioned, should be administered, by spoonfuls, till a thorough passage be procured.

In exhibiting calomel, in this manner, it once happened, in my practice, in a case of dry belly ach from lead † that a moderate

* See page 594.

† I am informed by Messrs Leightons who attend an extensive White Lead Factory in this neighbourhood, that they

rate falivation was induced. The painful symptoms immediately vanished, and the bowels afterwards were easily moved. Sometimes I add to the calomel and opium half a dram of the cathartic extract, and divide the mass into twelve pills, of which two are the common dose, to be repeated every quarter of an hour.

During the above course, fomentations, and the warm bath, should be frequently used, in the manner directed in the former chapter*, and, in obstinate cases, a large blister applied to the abdomen.

I shall conclude these observations by introducing one of the worst cases of colic attended

they have given calomel and opium to the workers, when afflicted with the colic, with the greatest success; together with the occasional use of purgatives. In mild cases a dose or two of calomel they find sufficient: but, in those which are obstinate, they continue the medicine, till the disease give way, or till the system be, in some degree, saturated. This last effect often takes place with all intermediate doses of calomel, from twelve grains to half a dram; but they observe, except in one case, the colic and painful symptoms were instantly removed, as soon as the tenderness of the gums appeared.

These gentlemen never observed any palsy to succeed the colic. It is probable, that, in the cyder counties, and in the West Indies, where the dry belly ach is endemic, mercury would be equally successful.

* See page 395.

attended with spasms of the muscles, which occurred, whilst the Talbot lay off Madras.

MR. A—, fifth mate, superintended the men who were employed in the hold in removing the lead, and assisted them in putting it into the sling to be hoisted up by the tackle. By this he was excessively heated, and when he came upon deck for air, he not only drank heartily of weak grog, but also very injudiciously cooled his body, by exposing it, in his shirt, to the land breeze; when the thermometer was very high*.

On the 12th of August, in the afternoon, he was seized with shivering, sickness, and vomiting. My assistant gave him small doses of emetic tartar, which evacuated much bile. He passed a very restless night, being tormented with violent pains in his bowels, and cramps in his legs.

Aug 13. This morning, when I first visited him, he was in great agony from stricture and pain about the navel, spasmodic twitches of the arms, and violent cramps in the upper and lower extremities. He faltered in his speech, and had totally
lost

* See Meteorological Register, page 70.

lost the use of his legs. His skin was exceedingly hot, his tongue foul, and he had been coſtive for three days. Two grains of opium were immediately exhibited in a ſoft pill: fomentations were aſſiduouſly applied to the abdomen and extremities; and the ſaline purgative, N^o. 5, with the addition of one grain and a half of tartar emetic, was ordered to be taken by ſpoonfuls. The firſt and ſecond doſes vomited him, and the remainder procured ſeveral ſtools, which were large and bilious. In the evening, his ſkin was cool and his pulſe natural: he could uſe his limbs, and was free from cramps and convuſions: but complained of the greateſt debility and foreneſs in the calves of his legs. A grain and a half of opium were given at bed-time; after which he paſſed an eaſy night, and ſweated plentifully.

14th. In the morning his tongue ſtill continued foul, and he complained of pain and ſtriſture about the navel. A full doſe of caſtor oil was ordered. At ten o'clock he was ſeized with violent cramps in his legs, and convulſive twitchings of his right arm. The laxative having operated three times, a pill with a grain and a half

of opium, was given, which procured him immediate relief. The spasms and cramps returning, it was repeated at bed-time.

15th. In the morning the cramps and convulsive twitchings recurred with violence; his skin was hot and dry, his pulse small, and only beat 70 pulsations in a minute: his tongue was clean, and his bowels open. A bolus, with fifteen grains of musk and one grain of opium, was prescribed every four hours, with two spoonfuls of a volatile julep.

He continued free from pain in the day; but, having omitted taking his medicines regularly, he had a very severe attack of the spasms at night, which were again removed by the musk and opium.

On the morning of the 16th, he was free from every complaint, except weakness in his limbs and pains in his bones. His medicines were repeated every four hours, which sweated him profusely: and, at night, he found himself perfectly easy.

On the 17th, being costive, a gentle laxative was prescribed. His complaints totally left him, and he recovered in a few days.

C H A P. VII.

OBSERVATIONS ON THE HEPATITIS OR
DISEASE OF THE LIVER.

IN hot climates, of all the *viscera* in the human body, the liver is most subject to disease. It suffers from obstruction, inflammation, and suppuration.

The disease of the liver is very common over all India, but particularly on the coast of Coromandel. It sometimes attacks in perfect health; and sometimes is the consequence of preceding sickness; and therefore it may, with great propriety, be divided into original and symptomatic.

When the disease is original, it is generally accompanied with an uneasy sensation of weight under the right hypochondrium, and, for the most part, with a very sharp pain about the clavicle or shoulder of the same side. As the disorder increases, the countenance becomes yellow; the patient complains of sickness or oppression at the stomach; difficult respira-

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tion;

tion; and generally uneasiness when he lies on the opposite side*.

Although these are the common characteristic symptoms of the hepatitis, yet, so insensible is the liver, that suppurations have been found, on dissection, when there have been no reasons to suspect any morbid affection of this organ. It therefore frequently happens, that the disease is fixed, and often incurable, before any alarming symptoms have appeared. The yellow colour

* Sometimes the patient can lie only upon the left side; and this will commonly be the case when the convex part of the liver is affected.

ON THE 27th of June 1789, I visited a Pitman, who had laboured under symptoms of active inflammation of the liver for near a month. He had been bled and blistered before I saw him. There was an evident swelling of the region of the liver, which was painful upon pressure, and attended with uneasiness of the right clavicle. His pulse beat 120: he was much reduced, and had symptoms of the suppurative stage. Mercury was given in the form of the mixture, N^o. 28, and the ointment was also rubbed into the part affected. He could never lie upon his right side till the 28th of August, when he complained of a cough, and had certain symptoms of an abscess having burst, through the diaphragm, into the cavity of the lungs. The mercurial course, though it was carried so far as to produce slight salivation, had no effect upon his complaint. His suffering daily increased, and at last became insupportable; except when he took very large doses of opium.

Although

colour, which generally accompanies the disease, is also precarious, as no cause, which does not obstruct the passage of the bile into the *duodenum*, occasions a jaundice: however, in all the cases which have fallen under my care, the countenance became remarkably fallow; and sometimes had a tinge nearly resembling a lead colour.

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Although there was great prominency of the false ribs; and the subcutaneous veins were very turgid, yet the abscess did not point outwards; and he was unwilling to run the risk of an incision to give vent to the matter externally.

His countenance, from the beginning, was fallow; and at last he had a slight jaundice. On the 28th of August, he, for the first time, complained of a cough. He was now in so much pain, and had so great a difficulty of breathing, that he consented to the operation. On the 29th, an incision was made by Mr Anderson, in the presence of Dr. Young, and the two Messrs Leighton, betwixt the 7th and 8th ribs, at about five inches from the cartilages. Five pints of purulent matter followed; but, at the same time, he was observed to cough up matter from the lungs.

For nine days following, he expectorated near a pint of purulent matter daily; but none flowed from the incision.

On the 9th of September, six pints of purulent matter were discharged from the incision, which relieved his respiration.

The cough and hectic fever, however, increased; and he died, exceedingly emaciated, on the 29th of September. Such cases frequently occur in India, and their fatality can only be prevented, with any degree of probability, by an early exhibition of mercury.

The disease of the liver has the greatest tendency to imposthumation. When the abscess points outwards, and the matter is discharged by incision, the patient has some chance of recovery; but when it bursts within the cavity of the abdomen, or into that of the thorax, the case will almost always prove fatal*.

Long

* Even, in such deplorable determinations of abscess in the liver, the patients must not be relinquished. For, when the strength and spirits are supported, nature has wonderful resources; and, sometimes, such dangerous cases terminate favourably. In support of this assertion, I shall here introduce the following cases.

THE SHIP'S STEWARD, after recovering from the dysentery at Calcutta, was seized with obstruction of the liver. Mercury was given in small doses; but was soon laid aside as he became hectic. In about six weeks after, he passed purulent matter with his stools. He gradually recovered his health, and every symptom of the diseased state of the liver disappeared.

As the matter was only voided in small quantity, it is probable, that the abscess was situated favourably for emptying itself by the *ductus communis*.

THE MASTER AND OWNER of a vessel, who had, for about two years, laboured under symptoms of a diseased liver, fell into a confirmed jaundice, which resisted every medicine, that had been prescribed.

On the 27th of September, 1788, I was first desired to attend him. In his passage, from London to Sunderland, he was seized with a violent shivering fit, succeeded by pain in the region of the liver; and he became feverish. When he came ashore, Mr Barnes bled him, and prescribed some other medicines.

Long before I visited India, however, repugnant to the theory of inflammation,

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and

cines. I found him still feverish; his pulse beat 120, but was rather feeble. His countenance and whole body were yellow; his urine very high coloured; and his stools white. He was confined to his bed, and could only lie on his back, reclining towards the right side. He had a short cough; a pain in the right shoulder; and a severe stitch in the right hypochondrium, whenever he coughed, or made a large inspiration. Upon examining the situation of the liver, I found its edge hard, and projecting beyond the false ribs; and the least pressure gave him much uneasiness. He was ordered to be bled; a blister was applied to the part, and calomel and opium, together with the saline draughts, were prescribed.

These medicines only gave temporary relief; the suppuration advanced, and he began to cough up purulent matter in great abundance mixed with bile; in the course of twenty-four hours, sometimes exceeding three pints

On the 25th of October, when I visited him for the third time, he still expectorated great quantities of matter, had vomited above a pint of pure bile; and passed many bilious stools. What he coughed up, he was sensible ascended from the seat of the liver; but it required great force to be expectorated, and often excited vomiting. His countenance and skin now began to loose the yellow tinge: but he was exceedingly reduced.

On the 13th of November, I again was desired to visit him. The hectic fever had abated; but, being much emaciated, I still had little hopes of his recovery.

His liver still feeling hard, small doses of calomel, with opium; and the strong mercurial ointment, which Mr Barnes had hitherto managed in a most cautious and judicious manner, were advised to be continued, as an alterative. He was also supported with milk, and cooling nutriment: and every thing

was

and the operation of mercury entertained in the schools of Europe, its superior efficacy in hepatitis was established in that quarter of the globe. The medical gentlemen there, finding the common antiphlogistic treatment ineffectual, and the disorder, under it, proving generally fatal, boldly prescribed mercury. The success exceeded their most sanguine expectations; and it was extolled as almost a never failing specific. They applied it externally by inunction upon the part; and, at the same time, exhibited calomel internally, in such doses as to excite a salivation. When it produces this effect, before matter be formed, it will be found the most certain and expeditious cure. But I had no doubt that the success of mercury was, at that time, greatly overrated: for it was often pre-

was done to support hopes of recovery. His spirits indeed, from the beginning, were wonderfully good.

During the whole suppurative stage, the tone of the bowels was kept up by infusions of colombo and bark; and rest procured at night by opiates.

From the greatest state of emaciation, he gradually recovered; and still (October 1791) enjoys perfect health. His colour is good; his flesh plump. But, according to his own expression, he feels every thing sticking to his right side.

prescribed in slight affections of the liver, which, in all probability, might have yielded to bleeding; the repetition of gentle purgatives; and the application of a blister.

Whilst in India I had an opportunity of seeing the disease, when original, only in six patients. One patient's case was remarkable for a tickling cough, difficult respiration, and irregular exacerbations of fever. On the sixth day, his countenance grew very yellow; he had frequent sickness at the stomach, with a reaching to vomit, and pain about the right clavicle, particularly when the seat of the liver was pressed. He was bled; had a blister applied; and took several doses of * soluble tartar and manna. On the eighth day, his fever abated; the painful symptoms left him; but his countenance remained fallow; and he was exceedingly emaciated. The infusion of chamomile, with salt of tartar, N^o. 17 was prescribed every three hours. He continued open in the bowels; made his urine copiously; and soon recovered.

The

* Kali Tartarifatum, Ph. Lond.

The other cases resisting the common treatment, on the fourth or fifth day of the disease, two grains of calomel, made into a bolus with conserve of roses, were prescribed twice a day, with an opiate in the night dose, to prevent its running off by stool. As soon as the mouth became affected the medicine was omitted; and although a salivation was not excited, yet, in all of them, the cure was completed in a fortnight or three weeks. During this course, if the respiration became difficult or the pain in the side more violent, it was necessary to bleed; and to apply a blister to the part affected.

In the preceding cases I preferred the internal use of mercury, on account of the prejudice which seamen have to the ointment, from their idea of it being only necessary in a certain distemper. But in all obstinate and dangerous affections of the liver, in the East Indies, greater dependence is placed in inunction, as the system, in this way, is more fully saturated, before the mercury run to the salivary glands, or bowels. At the same time a profuse salivation should be avoided, as
few

few evacuations are more debilitating in a hot climate.

To convey some idea of the disease of the liver, when it is the consequence of the remittent fever, or dysentery, I shall subjoin the following histories.

I. MR. C---, who came out in the Talbot, and had been very intemperate during the whole voyage, was seized with the remittent fever, at Calcutta, in the beginning of September 1788.

On the 8th of October I was desired to visit him. He was now exceedingly emaciated. His pulse was frequent; his countenance fallow; and he, for some days past, had a slight hemorrhage from the nose. But what gave him the greatest uneasiness, for several days past, was a weight in the region of the liver, and a sharp pain about the right clavicle. In these circumstances a German Surgeon had prescribed mercurials, and a decoction of sarsaparilla: judging these to be, at this period of the disease, improper, they were laid aside. A blister was applied to the part affected, and a gentle laxative prescribed.

On

On the 10th, the pain of the clavicle was removed; the blister had discharged well; but the exacerbations of fever returned at night, with an increase of the pain under the right hypochondrium. As he had taken no bark during the course of his fever; and as the hemorrhage from the nose increased, it was prescribed in strong decoction with the saline draughts.

From this to the 18th, the symptoms were rather flattering, the hectic fever abated and he was able to sit up. The uneasy sensation continued in his side, although no prominence could be observed; but his weak habit of body deterred Mr Hamilton, Surgeon at Calcutta, who was then called in, from giving him mercury.

On the 19th, he was seized with a tickling cough; had very difficult respiration: and he could not bear the region of the liver to be pressed. At night, after an attack of rigors, he vomited up a considerable quantity of white fetid matter; the cough and expectoration continued; his countenance became exceedingly ghastly; he gradually sunk; and in three or four days died.

The

The body was not suffered to be opened; but there is no reason to doubt but that the suppuration of the liver terminated as in the following case.

II. JOSEPH PATINGTON, a man of a strong robust constitution, in the beginning of October, 1768, was seized with the dysentery at Culpee. Having an aversion to medicines, and trusting to his former good health, he not only neglected every proper precaution; but lived very irregularly.

In the end of November following, the dysentery left him; and he was seized with an intermittent fever. Having also neglected this disease, it changed its type, became continual, and was accompanied with symptoms of putrefaction. Bark was now taken, but the fever was never totally subdued.

On the 10th of February, 1769, he complained of a very acute pain in the top of the right shoulder. On examining the region of the liver, no external fulness could be perceived; but, on pressure, he was sensible of a dull heavy pain in the part. He was much exhausted; his countenance was yellow; his pulse
was

was always frequent; and his fever increased at night. A blister was applied to his side; and the pain in his shoulder disappeared.

On the 11th, the pain of the clavicle returned, and the feverish paroxysm increased at night. A decoction of bark, with a little soluble tartar, was prescribed. The symptoms remaining the same, and the weak state of his body forbidding the trial of mercury, pills with soap and rhubarb were ordered.

For the following ten days, he seemed to be greatly relieved: the pain in the shoulder left him, and the dull sensation under the right hypochondrium gave him little uneasiness. The pills were continued, with a less quantity of rhubarb, as they had operated too much.

In the beginning of March, his countenance was very yellow. The pain in the seat of the liver became very severe, and was accompanied with oppression at the stomach, and difficult respiration. These symptoms increasing, on the 21st he expectorated near a pint of sanious matter.

On the 28th, a purging was added, and he complained much of sourness in his stomach.

stomach. Large doses of the testaceous powder were given, but to no purpose, and he died on the 3d of April.

Upon dissection, the liver appeared found on its surface; but the right lobe extended higher up than usual, and adhered strongly to the diaphragm. At this part, an abscess was found, which contained a considerable quantity of purulent matter. Its shape nearly resembled that of the human heart, and the matter made its way through the diaphragm at the adhesion, which easily admitted the finger. The gall-bladder was full of bile; the spleen was a little enlarged, and the stomach was small and empty.

Upon inspecting the cavity of the thorax, the right lung was wasted and adhered to the diaphragm, and the purulent cavity from the liver ran up several inches into the substance of that lung. No other remarkable morbid appearance was observed.

III. ANOTHER PATIENT, who suffered much from the fever and dysentery in 1768, relapsed into the disease of the liver, to which he had been formerly subject. Mercury was prescribed. The disease,
how-

however, terminated in suppuration; and he died in a month after he began the mercurial course.

IV. ON the 20th of June, 1771, I was desired to visit a German belonging to a country ship, lying at the island of Johanna. The vessel had been trading at Delagoa three months before, when a fever of a bad kind raged there, and proved fatal to numbers. All the Europeans that now remained were the captain, and chief mate just recovering from weakness occasioned by the fever; and the second officer, who had suffered much by the same disease, in the following miserable state.

He was confined to his bed; all the abdomen was much swelled, particularly under the right hypochondrium; but he said that part had subsided much during the last fortnight.

A Surgeon, belonging to one of our East Indiamen, about three weeks before I saw the patient, had prescribed for him: he had taken small doses of calomel, and had a mercurial plaster applied to his side. When the plaster was removed, the integuments over the sixth, seventh, and eighth

eighth ribs, were swelled œdematous, and painful to the touch. When he was turned to the opposite side, he complained of suffocation; and a quashing of matter in the thorax could be distinctly heard. He constantly laboured under difficult respiration; and continually coughed, and expectorated a frothy purulent matter to the quantity of two quarts in the twenty-four hours.

In this way he had passed the last fortnight: from a strong healthy man, he was reduced to a mere skeleton, and all his hopes were an ardent wish for death to put a period to his complicated distress.

It was proposed, in order to give him some relief, to make a puncture between the ribs; but, as we were to sail next day, he would not consent to so precarious an operation.

I was informed by a medical gentleman, who visited this patient a few days after I left him, that a mortification had begun between the sixth and seventh ribs, and that his whole side was emphysematous, with several livid spots. At that time, he still continued expectorating purulent

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matter

matter in great abundance, and had every symptom of approaching death.

From the preceding cases it evidently appears, that the remittent fever and dysentery, when allowed to run out for any length of time, frequently terminate in abscess of the liver; and hence we may see the necessity of subduing those diseases speedily, in order to prevent this dangerous consequence.

Before I conclude this chapter, it must be observed that I have found mercury equally successful in inflammation*, and infarction of the liver in this country; and also in several cases of jaundice, which had proved rebellious to the common modes of treatment.

CHAP.

* Edinburgh Medical Commentaries, Vol. V. p. 423.

C H A P. VIII.

OBSERVATIONS ON THE SCURVY.

THAT morbid state of the body, denominated scurvy, seems to depend upon a coincidence of various causes. A salt diet, affording little nutriment, on which seamen are obliged to live, very commonly gives rise to the scorbutic habit; which is increased by sloth, indolence, debility, in consequence of fever, dejection of spirits, and inattention to cleanliness. But the distemper seldom becomes general, or alarming, except cold and moisture be conjoined with the causes above-mentioned.

Many ingenious Physicians and Philosophers have exerted their talents to discover a cure for this destructive malady at sea. But their views having been commonly influenced by theoretical opinions concerning the proximate cause of the distemper, it is not to be wondered, that their proposals, when brought to the test of experience,

ence, have proved inadequate, and fallacious.

Among the various theories, concerning the cause of this disease, and the mode of operation of its remedies, none, when I entered upon practice, seemed so ingenious and plausible, as that of the late benevolent Doctor M'Bride.

The scurvy, by the united consent of Physicians, was considered a putrid disease. By a number of well conducted experiments * he endeavoured to prove that *fixed air* is the cementing principle of all bodies, vegetable as well as animal: and, that living animal substances become putrid, from the escape of this subtile vapour.

The cure of the scurvy was also known to yield to nothing certainly, but to fresh vegetables; whether *acid* or *alkaline*, *mild* or *acrid*, *sweet* or *bitter*. By various experiments, this ingenious Physician found that these vegetables, however opposite their sensible qualities appeared, all possessed one common property, viz. that, when mixed with any animal substance, and placed in a proper degree of heat, they ran into fer-

* M'BRIDE'S Experimental Essays. *passim*.

fermentation, and threw off a considerable quantity of *fixed air*, endowed with the power of correcting putrefaction; and restoring soundness to corrupted animal substances.

Having, by experiment, also made it probable, that the cure of the scurvy depended entirely upon the fermentative quality of the vegetables employed, he judged that any substance, proper for food, abounding with fixed air, which would keep long sound, and take up little room at sea, would prove a convenient and powerful antiscorbutic. Wort or an infusion of malt, from containing a great quantity of fixed air, he supposed similar in its qualities to fresh vegetables: and, therefore, proposed *dried malt* to be kept in constant readiness on board of ships as a remedy, whenever this destructive disease made its appearance.

Captivated by the ingenuity of this theory, I was glad to be informed, when the scurvy appeared amongst the crew of the Talbot off the Cape*; that there was a cask of malt on board; and still more so

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* See part 1. page 22.

to find that it was perfectly found. As the quantity seemed sufficient only to give a full trial in a few cases; six patients were selected, and the wort was made by pouring three measures of boiling water on one of fresh ground malt. After standing four hours, the liquor was strained; and one bottle given to each patient, which, as it agreed perfectly with the bowels, was soon increased to two quarts daily.

There being no live stock on board, the dinner of the patients consisted of boiled rice, with sugar, and a little wine: and, for breakfast and supper, they had each a pint of panado, made with powdered biscuit and wort.

Two of the patients continued the wort, and the above regimen regularly for eighteen days; and the other four from eight to ten days. I narrowly watched the progress of the symptoms: but had the mortification of observing the distemper to increase daily; and the patients to become weaker and worse, than those who were put upon other articles of regimen*.

Having

* The True Briton Indiaman sailed from St Helen's on the 20th of April 1770, and did not make the coast of Malabar,

Having a little lemon juice on board, the patients whose cases were farthest advanced, after they gave over the wort were allowed two spoonfuls thrice a day; and some of them, along with the lemon juice,

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were

till the 13th of December following. In the beginning of November the scurvy appeared amongst the crew; and, on the 20th, Mr Foreman, the Surgeon of the ship, began to give the wort, as directed by Dr. M'Bride to two of the patients. Four more were, soon afterwards, put upon the wort; which they continued, with great perseverance, for fifteen or sixteen days. But the symptoms in all rapidly increased; and some of them became so weak, that it was dangerous to move them. After they gave over the wort, they were allowed some lemon juice; and had a pint of port wine daily. The disease, notwithstanding, arrived to so great a degree of virulence, that fresh meat and vegetables, which they procured at Cochin, on the 13th of December, did not check the progress of the symptoms in these patients: and all the rest of the scorbutics also, except such as were slightly affected, grew daily worse, till they were sent ashore, on the 26th, at Tellicherry; where one of the patients, who had taken the wort, died of the distemper.

Captain Cook, in his paper presented to the Royal Society, observes that "he is not altogether of opinion that the wort will be able to cure the scurvy, in the advanced state, at sea; yet he is persuaded, that it is sufficient, along with proper attention to other things, to prevent the distemper from making any great progress for a considerable time." But, as he aided the wort with so many other excellent preventatives, such as *sour krout, rob of lemons and oranges, portable soup, and sugar*; it is improper to place the preservation of his crew to that article. However in his last voyage, during which he unfortunately lost his life,

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were ordered one dram of bark every four hours. Whilst this acid lasted, the disease remained stationary: but the weather being extremely stormy; the hammocks wet; and the ship dirty; no progress towards
reco-

the crews of the Resolution and Endeavour, although they were absent above four years from England, had not a single symptom of the scurvy amongst them, notwithstanding the wort was *never used*: and upon opening the malt and hops at the Cape, on the homeward passage, it was discovered that they were totally spoiled.—*Cook's last voyage, vol. III. page 448.*

But the following circumstance, in addition to what has already been advanced, will put it out of all doubt, that wort, unless assisted by fresh vegetables, or fruit, will neither *prevent* nor *cure* the scurvy.

“ A gentleman who is now a Lieutenant in his Majesty's
“ navy, and who commanded a ship last year on the Southern
“ Whale Fishery, informed me, that not only his people, but
“ he himself, became scorbutic during the voyage; notwith-
“ standing great care had been taken in salting the meat, and
“ furnishing the ship with the best provisions of every species;
“ so that even when they returned to England, their provi-
“ sions, of every kind, were found and good; but particularly
“ their biscuit, which had been kept in tight casks.

“ They were likewise provided with a considerable quantity
“ of good malt; which, as soon as the scurvy began to make
“ its appearance, they used very liberally, not only by drinking
“ its infusion, but by stewing it, and cooking it in different
“ ways;—and although they were a good deal on shore at
“ Port Desire, Penguin Island, &c. on the Patagonian Coast,
“ yet, as there were no fresh vegetables of any kind that
“ they could use, they could not check the progress of the
“ disease.” *Thomson's Essay on the Scurvy, 1790, p. 190.*

recovery could be perceived, nor indeed expected.

All the others, ill of the scurvy, had the usual medicines, which are given at sea; calculated, indeed, only to support hope, or at most to palliate some particular symptoms. The chief of which were gentle laxatives, when costive; diaphoretic medicines, at bed-time; bitters with vitriolic acid; fomentations; and antiseptic gargles.

They were supported with as cordial a diet as the ship could afford; such as boiled sago and rice, with sugar and wine. The last article was, indeed, distributed with the greatest liberality and humanity, by Sir Charles Hudson; and mango shrub was given to several by the officers, in such portions as were deemed proper. The disease, however, daily increased; and, when we came to an anchor at Madagascar, many were so weak, that it was judged unsafe to send them ashore for some days, as has been already mentioned*. But still it afforded great consolation, after a voyage of nineteen weeks, and a considerable

* Part 1, page 23.

rable part of the time passed in the cold tempestuous latitudes off the Cape, that we were able to preserve the lives of the sick; and that none fell a victim to this virulent distemper.

In our run between St. Helena and England, in the same voyage, two scorbutic patients, were cured at sea by rob of oranges, which was prepared at Madagascar, taken daily in the form below*. But it is necessary to remark, that they had the benefit of fresh meat from the Captain's table; and that the ship was kept more clean and pure than when she was off the Cape of Good Hope.

When the scurvy appeared in our homeward passage, between St. Helena and England in the year 1772 †, being still unwilling to relinquish the idea of the possibility of curing the scurvy by throwing a large quantity of fixed air into the stomach, I tried the effects of two remedies in eight patients. The first was beer made from
por-

* Take of Rob of oranges half an ounce,
Mountain wine a pint,
Refined sugar two ounces. Mix them together;
and take one quarter four times a day.

† See part 1, page 53.

porter *, which soon runs into a strong fermentation, and generates much air. It was made fresh every day: but, by mixing a bottle of the old liquor with the fresh ingredients, its briskness was much heightened. The other was an ale made from crude tartar †, recommended by my valuable friend, the late Sir John Silvester.

Two patients were put upon the use of the porter beer: One of whom also took three drams of the bark for some time daily. After using the beer for a month,
the

* Porter Beer,

Take of Porter two quarts,
Grated ginger two drams,
Soft sugar half a pound,
Water four quarts.

Put the liquor into strong bottles, and cork them well. One bottle may be used daily for drink, and another made into panado for breakfast and supper.

† Tartar ale,

Take of Crude white tartar powdered three ounces,
Juniper berries bruised four ounces,
Lemon peel one ounce,
Ginger in powder two drams,
Cloves in powder one dram,
Coarse sugar five pounds,
Water six gallons.

Boil them half an hour; then pour the whole into a tub; and, when nearly cold, pass the liquor through a strainer into a six gallon cask. If it do not soon ferment, add half a pint of porter.

It may be given, a few hours after the fermentation has begun, from one pint to two quarts daily.

the symptoms had not increased; but still several scorbutic spots remained, when he went ashore. In the other patient, for ten days, the progress of the distemper was checked; but the weather afterwards becoming cold and damp, the symptoms increased rapidly. He continued the beer from the 6th of August to the 1st of September, as he was extremely fond of it; and, when he became weak, was also allowed a pint of wine daily. Notwithstanding this, he became daily worse. On the 1st of September, arriving in the Downs, he was supplied with vegetable soup, and I kept him on board to see the progress of his recovery, in a ship which was crowded and dirty. After four days trial, all his former complaints remaining, he was sent on shore; where he recovered in a very short time; which he imputed to dry apartments and living upon good soft bread, roasted beef, and porter: for, having experienced so little benefit from fresh vegetables on board of ship, he said he used none after he went on shore.

The other six patients, ill of the scurvy, had an allowance of tea, wine, and sugar; and fresh meat, when it could be spared, for dinner.

dinner. They took two quarts of tartar ale daily. However they all became worse; and had our passage been much longer protracted, it seemed more than probable that several would have fallen sacrifices to the distemper.

From what has been advanced, it will readily appear, that, when the scurvy has attained any degree of vigour, nothing will cure it, whilst the patients are confined to dirty hammocks, and the damp air of a ship. Lemon juice, porter, wine and sugar, may for a little check its progress, and enable nature longer to support the conflict. But, when it has arrived to any degree of virulence, dry air, dry cloaths, and good nutriment will be found of more importance than all the boasted powers of medicine.

As it does not appear, therefore, that the scurvy can ever be cured at sea, whilst the causes which induce it subsist in any great degree; it is the express duty of those who have the command of ships, to prevent its formation by every means, which providence has suffered mankind to discover. But the farther consideration of this subject shall be left to the third part of this work.

C H A P.

C H A P. IX.

OBSERVATIONS ON THE RHEUMATISM.

THIS disease, though by no means frequent in hot climates, sometimes attacked the common seamen from getting wet, or sleeping upon deck in the night dews. Sometimes also it was the consequence of the remittent fever or the dysentery. In the first case, it was generally acute, or accompanied with fever; and, in the last, always chronic.

In the acute rheumatism, if the symptoms of inflammation ran high, bleeding was necessary. The patient was confined to a cool regimen, and a free perspiration kept up by deluting liquors, with small doses of emetic tartar or antimonial wine. If the pains became fixed to the joints, blisters were of great use, and frequently removed the complaint.

When the chronic rheumatism was the consequence of long continued fevers or obstinate fluxes, I was seldom disappointed in

in curing it, by sweating the patient with small doses of Dover's powder*, which however, ought not to be continued for any length of time, as it reduces the strength. This course should be omitted for two or three days, and then begun again, taking once or twice a week, especially when costive, the guaiac draught, N^o. 29. When the pains have continued obstinately fixed, I, in some instances, experienced advantage from the application of the liniment, N^o. 30.

When, by these means, the pains are removed, the Peruvian bark, and the use of the cold bath seldom failed to complete the cure; and to confirm the health of the patient.

Some cases of the chronic rheumatism came under my care, where the pains had been confined to some particular part of the body, as the shoulder, the joints of the knees and arms; which resisted every usual remedy. At last the disease was totally and expeditiously removed by rubbing mercurial ointment † upon the parts affected. The common mercurial pill was given

* Pulv. Ipecacuanhæ Comp. Ph. Lond.

† Unguentum Hydrargyri Fortius, Ph. Lond.

given at the same time. As a salivation rendered the cure more tedious, these medicines were generally laid aside before they produced this effect.

From the great success which attended this practice, I was at first induced to believe that the rheumatism was joined with venereal pains: but I afterwards found it as effectual, in several instances, where there was no reason to suspect any lurking taint of this nature*.

After settling in this island, in 1773; in every case of obstinate rhumatism, resisting the usual treatment I had recourse to mercury. But as it was necessary to conceal the medicine from the patient, I trusted entirely to calomel combined with opium. It was given from one to two grains every night at bed-time, with a sufficient quantity of opium to ease pain; and, if the distemper did not soon yield, it was increased, till such time as the patients complained of some degree of tenderness in
the

* In the year 1771, Dr. Fothergill's paper on the use of calomel in the sciatica appeared. It gave me much pleasure to find the efficacy of mercury confirmed, by the authority of so accurate a Physician, in this obstinate species of rheumatism. See MEDICAL OBSERVATIONS, Vol. IV. p. 69.

the mouth. By this procedure I was seldom disappointed in removing rheumatism, however obstinate.

Since I was elected Physician to the Infirmary, in Newcastle, in 1788, without reckoning the out-patients, I have given mercury to fifty in-patients in rheumatism, whose cases were selected on account of their long duration and obstinacy. When the distemper resisted the internal use of mercury, the ointment was rubbed upon the parts affected; and continued till the system was saturated. Of the number above-mentioned, forty-six patients, several of whom had laboured under sciatica, lumbago, or pains fixed to some of the large joints, not only for months, but for years, were completely cured; and the remaining four much relieved*. In obstinate cases it was necessary to keep up the action of the medicine for some time; but, in every instance, care was taken to avoid profuse salivation.

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* In the Dispensary, from 1777 to the present time, 215 rheumatic cases have been admitted under my care, of whom 198 have been cured; nine relieved; and eight dismissed for irregularity.

The acute rheumatism, attended with much fever, and with pain and swelling travelling from joint to joint, is perhaps as distressing a disease as any to which the human body is subject. By the common antiphlogistic treatment the fever is usually soon subdued: but the pains too frequently remain, and the patients become subject to violent torture, not only for many weeks but months.

Having too frequently been an eye witness of this miserable change of the rheumatism from the acute to the chronic state; even when the distemper had been treated by the ablest Physicians, not only in private practice, but in hospitals, before I left England; I was determined, upon my return, to have recourse to mercury, which I had experienced to be a most powerful remedy in obstruction and inflammation.

In the first cases, therefore, of acute rheumatism which occurred, after bleeding, I began the use of calomel with opium. Three or four grains were given the first night; and it was continued afterwards, sometimes to two, and sometimes only to one grain at bed-time, till the complaint began to abate; taking care not to push it farther,
even

even in the most violent cases, than slightly to touch the mouth. Whilst the fever continued, antimonials in small doses, so as not to occasion nausea or purging, were, at the same time, given during the day; and the patient kept upon a temperate regimen. By this procedure the fever was soon relieved; and the pain and swelling removed.

In my latter practice, I have seldom used bleeding, except the inflammation of the parts has been considerable, or the distemper attended with a pleuritic stitch. Nor have I often had occasion to apply blisters to the parts affected with the rheumatism; nor seen those effusions of gelatinous fluid in the sheaths of the tendons, which sometimes have happened under the common treatment: so powerful are the deobstruent effects of mercury in this distemper.

By this treatment the chronic state of the disease is almost certainly prevented. And since I began this practice I have not witnessed a single death in the rheumatism; an event which has frequently happened; when bleeding and evacuations have been carried to a considerable extent.

The common received opinion, that mercury acts chiefly by its stimulant power, has very much limited the use of this excellent remedy. When no feverish state subsists, it is certain, if it be intemperately introduced into the habit, so as to occasion swelling and inflammation in the throat or mouth, it will induce quickness and hardness of pulse; and every other symptom of the *phlogistic diathesis*. But, if it be cautiously prescribed, where fever already exists, as in the acute rheumatism, so far from occasioning stronger action of the vessels; as soon as the system is saturated, all the symptoms will presently abate; and soon totally disappear.

Mercury I have found so useful in subduing a multitude of diseases of very different and opposite natures, that I cannot impute its efficacy to one quality only. Many distempers, depending upon obstruction and inflammation, seem to yield to its wonderful deobstruent powers. But, perhaps, still a great number, arising from other causes, are subdued by its inducing and supporting a condition or state of the system, totally opposite to that of the existing disease. In this way, it is probable, it
re-

removes the dry belly-ach, some cafes of dyfentery, the tetanus, hydrophobia, and other fpafmodic affections. And on this principle I have given it in four cafes of recent insanity with the moft happy effects.

C H A P. X.

OBSERVATIONS ON THE VENEREAL DISEASE.

IN the former edition of this work I entered more fully into the confideration of venereal infection, than I judge to be neceffary in this, as the fubject has been of late exhausted by the judicious difertations of Dr. Simmons, Dr. Swediaur, Mr. Hunter, and Mr. Howard. I fhall, therefore, content myfelf with offering a few remarks on the treatment, fo far as it feems to be connected with a hot climate.

Although I have already recommended the ufe of mercury in feveral dangerous

states of diseases, resisting the common treatment, yet, in hot climates, I am so far from considering it to be friendly to the constitutions of Europeans in general, especially in long voyages, that I would never advise it to be exhibited unless necessity demand its use.

In recent gonorrhœa the principal object of the cure was to guard against inflammation. The patient was, therefore, confined to a cool regimen: the body was kept open by the mildest laxatives; and the heat of the urine blunted by mucilaginous drinks. General and local cleanliness was attended to; and injections thrown up the urethra three or four times a day. During the inflammatory state the injections were of an emollient sedative nature, and used warm: but, as soon as the painful symptoms had abated, they were of an astringent nature *, and injected perfectly cold.

In the mild gonorrhœa, when such a course was begun in time, notwithstanding the

* The astringent injections which I used generally in my voyages to India, either consisted of half a dram of sugar of lead; or one grain of corrosive sublimate dissolved in eight ounces of soft water; or in such proportions as the urethra could bear without much irritation: since that period I have, with advantage, added opium to these injections.

the many assertions to the contrary, in my voyages to India, I never saw mercury necessary to complete the cure. But, in several cases which came under my care, either from neglect, improper treatment, or the peculiar virulence of the infection, the distemper resisted the common antiphlogistic treatment. It then became also necessary to give mercury not only to subdue the violence of the local symptoms, but to secure the constitution against the effects of absorption.

When the gonorrhœa was accompanied with chancres, warts or raspberry like excrescences, local applications seldom removed these symptoms radically. On the contrary the excrescences generally required as much mercury to subdue them as if the distemper had been constitutional. Nay they would often sprout up again, after the habit was freed from every other suspicion of venereal taint; notwithstanding they were frequently destroyed by caustic, and escharotics. But, at last, they would often disappear of their own accord.

When the disease was confirmed, I trusted to the simple preparations of mercury, such as purified quicksilver extin-

guished in mucilage, honey, or rhubarb*, either made up into pills, or in the form of the mixture, N^o. 28. At the same time opiates were given to prevent the mercury from running to the bowels. In the worst cases, inunction with the strong mercurial ointment was preferred to the internal use of mercury.

As there was no possibility of ascertaining the quantity of mercury different constitutions would bear, it was always necessary to begin with small doses, and to increase them gradually. If during this course symptoms of salivation appeared, it was immediately suspended: and afterwards never carried farther, with design, than to occasion slight soreness of the mouth.

When these preparations of mercury did not succeed, others were used. Those which

* Of all the different articles which I have employed to extinguish quicksilver, rhubarb answers the purpose most speedily and effectually. The following was the form I used. Take of quicksilver one dram, rhubarb one scruple. Moisten the quicksilver with any syrup to the consistence of honey; and grind them till the globules of quicksilver totally disappear. Then add a sufficient quantity of powdered liquorice, or crumb of bread, to reduce the whole into an uniform mass; to be made into sixty pills. From three to six may be taken night and morning.

which I ofteneft tried were the precipitate from calomel of Dr. Saunders, or Plummer's powder. The folution of fublimate was found very precarious. It had a bad effect upon the ftomach; and at beft only fuppreffed the fymptoms.

When the ufe of mercury becomes neceffary in hot climates, efpecially in unhealthy fituations, half an ounce of bark fhould be taken daily, during the whole courfe; which enables the conftitution to bear a fufficient quantity to fubdue the difeafe. Before I prefcribed the bark in this manner I had feveral cafes under my care, where a fmall quantity of mercury, whether ufed internally or externally, ran fpeedily to the mouth, and weakened the patient, without having much influence on the diftemper.

During the mercurial courfe, the ftrength fhould not be allowed to fink. The patient ought, therefore, to be fupported by a cool nourifhing diet. He fhould not ufe any violent exercife, nor expofe himfelf to the heat of the fun: nor fhould he put any additional covering upon his head.

If

If such gentle treatment be followed in the beginning; and the bark, and opium be taken along with mercury, the disease may be almost always removed without any risk to the constitution.

C H A P. XI.

OBSERVATIONS ON THE TETANUS.

THIS spasmodic affection has obtained different names according to the parts affected. If the head and trunk be rigid and immoveable it is strictly named *tetanus*. If the jaws be so fixed as the patient cannot open his mouth it is called by some nosologists * *trismus*, but more expressively in English the *locked jaw*. If the body be bent backwards in a curve it has been termed *opisthotonus*, and if forwards *emprosthotonus*. But, under these forms, the disease is essentially the same, arising from the

* Sauvages. Cullen,

the same causes, and differing only in degree.

This violent and dangerous spasmodic affection is most frequent in hot climates; and most commonly originates from wounds, punctures, lacerations and contusions, especially of the toes and fingers: and, what is very remarkable, ofteneft from those of a slight nature. It is also produced by exposing the body, when over-heated, to cold air; to wet; and exhalations from damp grounds.

The *tetanus*, in an extensive sense, may be defined a painful, rigid and immoveable contraction of the parts affected, but especially of the muscles of the jaws and back: for although the spasms suffer severe exacerbations, yet, so long as the distemper lasts, the contraction of the muscles never abate so much as to allow of the proper action of their antagonists. But besides this permanent contraction of the muscles of the parts primarily affected, the *tetanus* also seems to be compounded of transient spasms of the muscles of other parts of the body, occasioning various twitchings.

The disease, for the most part, comes on slowly, and is, therefore, in the beginning,
often

often mistaken for some rheumatic affection of the neck. The first symptoms generally are slight stiffness of the neck, and jaws, and some difficulty in swallowing. As the complaint advances the muscles of the jaws are affected with rigidity, which increases so much that the patient is not able to open his mouth: and the neck and dorsal muscles become so strongly contracted, as not only not to suffer the least flexion of the body forwards, but strongly to bend it backwards. At this time, most commonly, strong convulsive transitory spasms seize the under part of the *sternum* and extend to the back: and every attack of these spasms fixes the lower jaw more firmly, till only a small aperture be left between it and the upper. Sometimes indeed the teeth of both jaws meet so near as not to allow even liquids to be put into the mouth.

Under the most violent degree of the distemper the muscles of the extremities become rigid; as also those of the *abdomen*: and, in this last case, if the dorsal muscles, which are the strongest be not affected, the body will be bent for-

forwards * instead of backwards ; or, in other words, the patient will labour under *emprosthotonus*. This last form, however, seldom, in modern times, appears with that degree of contraction, so as to fix the chin down upon the *sternum*, as mentioned by the ancients. When the distemper is completely formed the torture of the patient is severe beyond description ; and a general convulsion most commonly appears, which puts a period to his miseries.

During the whole course of the *tetanus* the pulse is rarely accelerated. The heat is seldom above the standard of health : on the contrary, the body, but more especially the extremities are cold.

The *tetanus* when left to nature is generally mortal : and, if completely formed, rarely yields to art. When it seizes suddenly, and violently, in consequence of wounds, the patient is soon carried off ; and seldom survives the 4th, 6th, or 7th day. But, when it arises from cold and comes on slowly, especially when the patient gets beyond the eight day, there is considerable chance of recovery, if proper means be assiduously employed.

Having

See note, p. 105.

Having premised these particulars I shall proceed to give a detail of the two cases, which occurred in my last voyage to India. The first, though unsuccessful, is introduced not only to guard the inexperienced from being deceived by the insidious attack of the distemper, which, in the beginning, appeared to be of a very trivial nature ; but also to evince the dangerous consequences, which must ever result from feeble practice, when this dangerous spasm is formed.

I. JOHN STAFFORD, Seaman, after sleeping in the long boat, during a cold night, in his return from Canton, on the 6th of February, 1772, complained of an uneasy stiffness of his neck, and some difficulty in swallowing, with general lassitude. Having no feverish symptoms his ailment was conceived to be of a trivial nature. A diaphoretic draught, with twenty drops of tincture of opium, was prescribed at bed-time ; and he was desired to promote sweating by warm sage tea.

February 7th. Although he had been in a gentle sweat during the night, the rigidity of the neck, and difficulty of swallowing continued : and, upon touching
his

his neck and jaws, the muscles felt hard. Desiring him to open his mouth, I was exceedingly surpris'd to find that it was not in his power; and that the aperture, between the teeth of both jaws, did not exceed half an inch. The patient, however, thought little of his complaint, and observed, that he had been similarly affected on the coast of Guinea, merely from catching cold; which disappeared of its own accord. He was bled to ten ounces; and took a laxative. At night he could open his jaw, which relieved my apprehensions. But he still complained of difficult deglutition, although his throat, upon inspection, had no appearance of disease. A bolus, with five grains of camphor, and one of opium was given at bed-time, and ordered to be repeated if occasion required.

8th. He sweated profusely during the whole of last night. Took another bolus, early in the morning, and was in a perspirable state when I visited him. His neck and jaw however still were stiff; and he said he had got no rest in the night from transient, but painful cramps. During the time I was making inquiries, if he had lately received any external injury, he
was

was seized with pain at the pit of the stomach, and strong convulsive spasms of the muscles of the *abdomen*. One moment he was drawn forcibly forwards, and the next he fell backwards in his hammock. These spasmodic contractions returned several times in five minutes; and, from the torment which attended them, large drops of sweat ran down his forehead. He at last recollected that, when he went into a boat, on the 24th of January, he had bruised the ring finger of his right hand; but so slightly that it had never occasioned the least uneasiness. The joint of the finger, upon examination, appeared a little swelled: the nail was loose, but there was no discharge of matter.

Having now no doubt concerning the nature of his disease, a draught with two grains of opium was immediately given: the nail was removed; and an incision made in the finger down to the bone. As soon as the blood stopt, it was dressed with warm digestive. An emollient poultice was laid over the dressings, and ordered to be repeated frequently.

Being obliged to go to Canton for a few days, I left the patient under the care of a Surgeon,

Surgeon, after explaining the nature of his complaint; which indeed was now so dreadfully formed as to admit of no ambiguity: and requested him to give opium in large and repeated doses, so as to mitigate pain; and to use either fomentations or the warm bath occasionally.

The sequel of the case is abridged from the minutes of the gentleman who attended.

9th. The finger began to digest. Although he had taken two grains of opium he continued in a restless state during last night. The jaw was completely fixed, and felt very hard and stiff: the muscles of the *abdomen* were contracted, and he was drawn forwards. He continued in great agony; had a retention of urine, but passed some in drops with much pain. Having taken only two draughts with opium, he experienced no relief. At night his jaw and neck continued very stiff and hard: the muscles of the *abdomen* were in the same state; and the pain was excruciating when attempted to stand erect. The draught with opium was given at bed-time.

10th. The rigidity and hardness of the muscles of the *abdomen* increased; and he could neither sit erect nor, stand from

a violent spasm drawing him down from the *sternum* to the *pubes*. He was in great agony during the whole day; and kept constantly in a reclining posture with his head bent forwards. No opium was given this day till bed-time, when he took two grains. The whole of the endeavours of the Surgeon were directed to the suppression of urine. Fomentations and diuretics were given; and the catheter tried to be introduced, which was prevented by the spasm. At night two grains of opium were prescribed.

11th. He was in the greatest agony in the night: made no urine. The muscles of the jaw, neck, and *abdomen* continued equally hard and rigid. But he had only pain from the strong spasm of the *abdomen*; which still made the Surgeon believe that the distemper proceeded chiefly from suppression of urine. The catheter was this day introduced into the bladder, but no urine was drawn off. He was put into the warm bath, which gave temporary relief. At noon he was in extreme agony from convulsive twitchings, and the pain in the muscles of the *abdomen*. In the afternoon he was seized with a general spasm, and died

died instantly. As soon as he expired the rigid muscles of every part of the body became pliant; and his urine was discharged to the quantity of half a pint.

II. JOHN PENNICK, aged 26, on the 13th of April, 1772, in jumping from the booms sprained his ancle. An hour after the accident, being in great agony, I was sent for to visit him. He had constant transient convulsions of the muscles of the leg and thigh; the pain of which made him sweat profusely. Upon examining the part sprained, nothing could be observed, except a small puffy tumour near the *tendo achilles*. When the foot was brought forwards, in an acute angle, the pain instantly ceased; but, upon letting it go so as to relax the tendon, the tremors and pain recurred with great violence. The foot being secured by a bandage in the position before mentioned, he continued perfectly easy for some hours, which induced him to believe that the cramps would not return. But, upon taking off the bandage, he suffered much from his temerity. Two drams of tincture of opium were rubbed into the part affected, which, together with replacing the bandage, totally removed every painful

sensation. Some hours, after this, he thought himself well; and, being a very active fellow, would not stay below. He, therefore, again removed the bandage, and returned to duty.

On the 25th of September he was seized with spasms between his shoulders, which prevented him getting any sleep in the night. On the 26th, being in extreme torture, I was sent for, and found him in the following state. Severe spasmodic contractions, seizing the muscles, forcibly drew back the *scapulae* almost in contact with each other. In a moment the spasms changing their situation, and striking across the ribs to the *sternum* as violently, in jerks, drew the head towards the breast. These contractions returned with severity eight or ten times in a minute; the momentary relaxation allowing some little respite from pain. In the night, he observed he could scarcely open his mouth from rigidity of the jaw; and that he had been able to void no urine for twenty-four hours. Thirty drops of tincture of opium were immediately given, and ordered to be repeated according to the urgency of the spasms. The muscles affected were likewise embrocated with

with a camphorated liniment and opium. After taking three draughts the spasms were mitigated; but at night he complained of difficulty in swallowing.

On the 27th the muscles of the neck, spine, and jaw were more rigid; but the spasmodic twitchings were kept tolerably easy by opium. In the afternoon, as he complained of confusion of his head, the opium was given less frequently. One dram of *asafoetida*, in solution, was prescribed every two hours, and five grains of calomel occasionally when costive.

On the 28th and 29th he had frequently the hickup. The other symptoms were the same. On the 30th, after passing a good night, he seemed much better; and, on the first of May, was free from every complaint, except weakness.

Having given over taking both the *asafoetida* and opium, on the evening of the 2d of May, his complaints recurred with great violence. His jaw was so firmly locked, as only to leave a small opening between the teeth. The *scapulæ* were drawn towards each other in convulsive jerks; and his body was bent forwards, at times, by a strong spasm seizing the *sternum*, the

abdomen and ribs. His left eye was dull and watery. After every severe attack of these transient spasms, he complained of faintness. Five grains of calomel were given; and opium was ordered to be continued freely. He refused the *asafoetida*. The jaw was locked during the whole day. He swallowed at night with difficulty; and complained of an uneasy sensation in the gullet, which he compared to the beating of a watch.

May 3d. He sweated much during the night, but got no rest. His jaw was less rigid, and he could open his mouth a little wider; but the stricture at the pit of the stomach was distressing.

4th. He was seized with violent contractions of the muscles of the neck, and chin; and his jaws became again firmly fixed. Forty drops of tincture of opium were given in a dose of the camphorated julep; and repeated according to the urgency of the spasm. But as the opium had hitherto only afforded temporary relief, I was now determined to saturate the system with mercury: therefore, besides, the use of calomel, two drams of strong mercurial oint-

ointment were carefully rubbed into the jaws, and neck.

5th. In the morning he could open his jaw; but, strong spasms seizing him at mid-day, it became again strongly fixed. Two drams of the mercurial ointment were rubbed into his legs and thighs: and the opium was continued.

On the 6th the hickup attacked him with severity. On the 7th, he could open his jaw, and was free from spasms. His mouth was tender, but no salivation was produced. Wine, for some days past, was allowed freely: and he was now ordered one dram of the bark every three hours. The opiate was continued at bed-time.

From this time he began to recover: and again returned to duty on the 10th of May. He was desired for the sake of security to continue the bark; and to bathe in a tub of sea water. But thinking himself perfectly secure he neglected these precautions.

On the 19th of May he was seized more violently than ever. His neck became rigid; his jaws fixed; and the convulsive contractions affected various parts of his body. The same means were again had

recourse to. Opium always afforded temporary relief. All his complaints disappeared by the 25th of the month, except a slight hickup after swallowing liquids. He afterwards used the cold bath every morning for some weeks ; and was restored to his usual health.

After getting frequently wet, on the 20th of July, he was again seized with spasms in a very violent manner ; which, however, were mitigated after taking six grains and a half of opium ; and, in four days, disappeared under the moderate use of the same medicine.

In exhibiting opium in the *tetanus*, the dose must be increased so as to relieve the violence of the pains and spasms. The quantity which may be taken, without affecting the head or producing sleep in this disease, is astonishing. Dr. Huck *, in a case of locked jaw, arising from a wound, and which terminated successfully, began with one grain of opium every three hours. But by the ninth day the dose was, from necessity, increased, so that the patient, at proper intervals, consumed
every

* *Medical Observations*, Vol. III, p. 333.

every twenty-four hours, one dram of opium, and half an ounce of musk, rubbed down with sugar, in a pint of common julep. This quantity however is trifling in comparison to what is sometimes required in so painful a distemper. Dr. Gloster *, of Antigua, in a case of locked jaw in a negro, aged 40, whose disease also terminated favourably ; on the second day began with giving five grains of opium every third hour, in a powder joined with camphor and nitre. The opium was gradually increased. It was afterwards united with musk and cinnabar, and at last given to the extent of twenty grains every third hour. For six days the relief was inconsiderable. But after this the symptoms gradually abated: and, in thirteen days more, were so much diminished, that it was judged unnecessary to continue the medicine. During the first seventeen days, the patient took, in all, *fifteen hundred grains* of opium, without producing the least affection of his head. During the whole time he also had very little sleep.

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* *Transactions of the American Philosophical Society.* Vol. I.

Although many cases have been recorded of the beneficial effects of opium in this disease, yet it so often failed in Jamaica, that a gentleman of the faculty there was induced to prescribe mercury. The patient was rubbed two or three times a day with mercurial ointment, till such time as a salivation was raised. As soon as the mouth became affected the spasms left the jaw, and the transitory convulsions soon ceased. Every case, coming under his care, was treated in this manner. Twelve patients were cured, who were all who applied early enough to afford time to bring on a salivation before the fatal period. But it is proper to observe that none of these cases proceeded from wounds, but merely from the effects of climate*.

The effusion of cold water recommended by Hippocrates, and again proposed by Dr. Lind, has been lately carried into execution in the *tetanus*, by Mr. Cochran, of Nevis †, and Dr. Wright, of Jamaica ‡. The patient is ordered to be stripped naked, and two or three buckets of
of

* *Physical and Literary Essays*, Edinburgh, 1771. † *Medical Commentaries*, Vol. III. p. 183. ‡ *Medical Observations* Vol. VI. 143.

of cold water to be dashed upon his neck and body; every three or four hours. He is afterwards rubbed dry and laid into bed; and moderate sweating encouraged. In the management of this process Dr. Mosley very properly observes, that it is only to be repeated, while it continues to moderate the spasms, and to keep up heat on the surface of the body; and that it will destroy the patient either when he is covered with cold sweats, or with profuse perspiration*.

Dr. Rush, from the *tetanus* being prevalent in hot climates, concludes that it is occasioned by relaxation; and, therefore, most likely to be cured by tonics. This hypothesis induced him to try the effects of bark and wine. The former he prescribes from two to three ounces, and the latter, from one bottle to three pints in the day. He relates two cases which terminated favourably under this treatment. But, in one of them, after the stimulating powers of bark and wine lost their effects, he added oil of amber in large doses. In a subsequent paper he mentions two other cases,

* Mosley on Tropical Diseases, p. 495.

cases, which were successfully treated by wine and mercury *.

Such are the practices which have been recommended in this dangerous distemper. But it is to be regretted, when those different measures have been carried into execution by Medical Gentlemen, who reside in countries where the disease is most prevalent, that disappointment has too frequently been the consequence. A friend of mine returning from Jamaica, where he has practised for above eighteen years, candidly informs me, that, alone, and in conjunction with others, he has tried all the remedies proposed, but rarely with success after the spasms have been completely formed.

In none of the fatal cases, which he related, was mercury so early given, as to produce its proper action upon the system. Nor does it appear that he, or practisers in general have availed themselves of the united powers of the remedies which have been proposed.

The disease being of a most violent, rapid, and dangerous nature, the system ought

* Rush's Medical Inquiries, 3d Edit. p. 195, 208.

ought to be speedily and powerfully acted upon. Too much has been trusted to opium alone; which is only palliative, or at most enables nature to combat the disease. With these views let it be given: but, along with it, let calomel be joined, and mercurial frictions liberally employed, on a large surface, during the first days of the distemper. At the same time, let the body be soured with cold water, with the precautions * already mentioned, and wine given liberally.

These powerful agents cannot fail to impress the system strongly: and particularly, if the mercurial action, which is more permanent than that of any other medicine we are acquainted with, be timely produced, it is probable that the spasms will give way. At all events mercury can do no harm in a distemper, which, if not speedily removed, proves most certainly destructive. The frictions with mercury also have this advantage, that they do not interfere with other modes of relief.

The best means of preventing *tetanus*, in countries where it is prevalent, are to dilate the slightest wounds, and to bring them

* Page 458, 459.

them to digestion, by applying spirit of turpentine. Every person has observed the absence of all inflammation in the wounds and injuries which produce it: and Dr. Rush informs us, that he never knew an instance of *tetanus* arising from a wound where spirit of turpentine had been applied in time*.

The spasmodic affections †, which appear upon the coast of Coromandel, seem to have a near analogy to the cholera. The vomiting is a leading and dangerous symptom; but if it and the coldness of the extremities can be removed, there is no immediate danger from the spasms. The spasms indeed differ from those which accompany the cholera in not being attended with purging. But if we conceive a patient attacked with cholera, to be seized at the
same

* *Medical Enquiries*, p. 200.

† See Part I. p. 105.

Dr. Girdlestone observes, that if the spasms were ever so general, with warmth of the extremities there was no immediate danger: on the contrary, if the spasms were ever so trifling, with coldness every danger was to be feared. This is agreeable to the observations of a Medical Gentleman of great discernment, who had resided near twenty years in the country. He informs me, if heat could not be speedily recalled, and the vomiting removed, the disease always terminated unfortunately.

same time with strong spasmodic contractions of the muscles of the *abdomen*, and of the intestines themselves (which is actually the case, in the distemper under consideration) constipation must be in general the consequence.

With respect to the cure, according to the united consent of all the gentlemen with whom I have conversed, it is to be treated exactly as the cholera. Warm clysters with tincture of opium are to be injected frequently; and opium is also to be given in a small cordial draught according to the urgency of vomiting. Every method to recal animal heat must be instantly put in practice. With this view bags of hot sand are applied to various parts of the body: the extremities are fomented, and afterwards rubbed with hot cloths. As soon as the irritability of the stomach is removed, the faculty at Madras place great confidence in the liberal use of hot Madeira.

POSTSCRIPT,

CONTAINING A

REPORT OF THE PRACTICE IN FEVERS,
IN THE SHIPS IN THE SERVICE OF THE
HONOURABLE EAST INDIA COMPANY,
FROM THE YEAR 1770, TO 1785.

AS soon as I engaged to prepare the present edition of this work for the press, application was made to the Court of Directors for leave to examine the Medical Journals of the East India ships, from their commencement in 1770. In consequence of which an order was given for depositing the Journals in a commodious room, in the India House, for the perusal of any gentleman of the faculty I should nominate. And, to render the inquiry more useful, leave was also granted for taking extracts.

The motives, which more especially influenced this inquiry, were to ascertain the success of the practice in fevers, and to record any modern improvement, which
might

might have been discovered for lessening the mortality, which so frequently happens in voyages to so distant a country.

That this inquiry might be properly executed I prevailed upon a Physician of great discernment, abilities, and zeal for promoting the interests of his profession, to peruse the medical day-books and journals. Six months have been employed in this laborious work; and so indefatigable has my friend been, that I have now before me not only a report from every journal which has been kept; but also many cases of fevers, and some of other diseases, recorded by the Surgeons in the service, from the year 1770 to 1785.

Partial extracts indeed would have deserved no confidence: but, being in possession of the whole evidence, I shall proceed to give a report of the success of the practice followed in fevers, in as concise a manner as possible*.

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* Had the materials arrived in proper time, extracts from them might have been introduced to have strengthened the practice, recommended in several diseases already treated of. But they contain nothing to make me alter my opinion concerning the methods of cure which have been proposed. Some facts, which apply to the prevention of diseases, will be introduced in the third part of this work.

From the materials in my possession, it appears that one hundred and eighty-nine cases of fevers are recorded in the journals; in which the treatment and event are ascertained. But many patients are mentioned as having been attacked; the number of whom, and the event of the diseases, are not specified.

Of the above number which are precisely ascertained, one hundred and five recovered, and eighty-four died.

In all the successful cases the bark was prescribed: but, in many, the recovery seems to have been retarded, by the long continuance of antimonials, and the too late and sparing use of the bark: for, in those cases, where it was early and liberally persevered in, the disease seems almost invariably to have been speedily subdued; and the health of the patient soon restored.

In many of the unsuccessful cases, the bark was also prescribed. In two of these cases it was given early, but from the appearance of bile* or some other casual symptom,

* A great secretion of bile in fevers, and in almost every other disease, is an effect and not a cause. I know of no distemper, indeed, which originates from bile, except the cholera

symptom, it was soon left off, and bleeding, antimonials, and other evacuants substituted. In all the rest of the cases, which terminated fatally, the bark was not exhibited.

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lera or diarrhœa in hot climates ; and even not these unless a check be given to the cutaneous secretion. This symptom, in fevers of every country, never appears except where there is great irritability of the stomach. The only means of removing it is to allay irritation of that organ ; to keep the bowels open, and to remove the original disease. The delusive theory of bile being the cause of fever, so universally adopted by the practisers of physic in India, I fear, is likely to be attended there, with all the destructive consequences, which, in this country, has followed the equally ill-founded *phlogistic diathesis*. It gives rise to the continued use of emetics, antimonials, and purgatives, which, by increasing the irritability of the stomach, and the action of the gall ducts, not only aggravates the symptom intended to be relieved ; but, by sinking the strength already too much debilitated, renders the disease incurable. The remark of Sir George Baker, in the third volume of the *Medical Transactions*, when treating of the dry belly-ach, is so expressive of my ideas of the limited use of vomits in fevers ; and of bile being only an effect, that I cannot forbear introducing it.

“ An effectual emetic, given in the beginning of this disease, as it unloads the stomach from its foul contents, is advisable, and even necessary. But a frequent repetition of strong antimonial vomits, given with an intention to evacuate *the corrupted bile*, would only harass the patient most unprofitably. Those, who, on this principle, have recommended such a practice, have mistaken the effect for the cause. One might, with equal soundness of argument, maintain, that sea-sickness is excited by bile ; a cough by a copious expectoration of *mucus* ; or an *ophthalmia* by the water that distils from an inflamed eye.”

hibited till within a day, or at most two before the patient's death ; and then generally only in decoction.

Many instances occur in which the bark subdued the fever, after bleeding, the frequent use of antimonials, and other evacuants. But, under this practice, it too often failed ; and the patients were liable to be affected with the scurvy, and other chronic complaints ; which an early use of the bark totally prevented.

From the account of the journals before me, it gives me pleasure to observe, that, in the ships of those Surgeons whom I knew to have no prejudice against the early use of the bark, even when no remission happened, fevers were soon subdued ; general sickness prevented ; and few instances of mortality occurred.

Upon the whole of the evidence, it appears, that, when fevers of any consequence prevailed in the ships, either at sea, or at the different stations in India, mortality was almost invariably the consequence of bleeding and the continued use of purgatives, and antimonials. That, under a cordial regimen and moderate evacuations, succeeded even by a late use of the bark, many recovered :
and

and that, under the early, liberal, and continued use of this medicine, not one instance of death is recorded.

But, in order to give a more comprehensive view, I shall subjoin a report of some ships individually, especially those where sickness was most prevalent.

THE JOURNAL of the THAMES commences the 12th of February, 1771, and ends the 31st of May, 1772.

In the outward passage to Bencoolen, thirty of the soldiers were affected with the fever; which is denominated putrid, of whom five died. Six cases are recorded, by way of illustration. One of the mortal cases had been previously treated for the itch, which was removed, by bleeding and repeated purgatives, by the 21st of February. On the 1st of March, the same patient is recorded under the title putrid fever. He was again bled, had a clyster, and other medicines, and died on the 15th of the same month. In another venesection was prescribed, and he also died.

The general practice, however, seems to have consisted in the use of emetic tartar in small doses; afterwards draughts with cordial confection and contrayerva; and,

at last, the bark in decoction to the quantity of two ounces, with one dram of the tincture of snake root every four hours.

Twenty of the seamen are said to have been ill of the remittent fever previous to the 26th of August, 1771, of whom two died.

But the Surgeon of this ship, seems to have given the bark more freely, than in the cases recorded: for, in a letter addressed to Sir John Silvester, he observes, that, "The most frequent disease was fever, which generally remitted or intermitted, and was easily subdued by the use of the bark. In a Bencoolen and China voyage, bark is the *great dependence*; nor ought a ship to sail with less than thirty or thirty-five pounds of it."

THE JOURNAL of the TRITON, which sailed for Bengal, in January, 1772; and arrived in England in September, 1773, only contains the following extract, worthy of notice.

"From April to the 20th of May, 1772," says the Surgeon, "I was confined with a violent fever. This was also the case with the ship's company, the sick list having increased to sixty, when we arrived at
the

the Cape of Good Hope. In the beginning of this fever, inflammatory symptoms chiefly prevailed; frequently with bilious vomiting: but, in its progress, it changed into a *typhus*; or was succeeded by a flux."

"The greatest relief seemed to be procured by continued evacuations, with small doses of tartar emetic, or James's powder. The remissions were so incomplete, and the inflammatory symptoms so prevalent, that bark was seldom administered till the sixth, or seventh day of the disease."

The journal does not make mention of the result of this practice. But, on the 17th of March, 1772, the case of — PILEMAN is recorded. After the exhibition of antimonials, on the 18th, half a dram of bark was prescribed every hour: but, on the following day, it was changed for the saline julep, with half a dram of rhubarb. On the 21st, the patient being delirious, blisters were applied to the ankles; and an emulsion with camphor was prescribed. On the 22d an antimonial draught was given: and, on the 23d he died.

Although we are left in the dark concerning the general success of this practice, in this prevalent fever; yet we may conclude, (from what happened to other ships, where similar opinions were entertained by the Surgeons, and similar management adopted,) that the mortality would be considerable. This much is certain, that, in this ship, as well as in many others, whose journals I have perused, with-holding the bark, in contagious fevers, is not one of the least causes of rendering sickness universal.

THE JOURNAL of the EARL SANDWICH commences March 20th, 1772, and ends January 22d, 1774. The diseases, in the beginning of the voyage, venereal infection, and the usual inflammatory complaints.

“GEORGE WALKER was taken ill, about twelve o’clock at night (probably on the 22d of June, 1772) with delirium, strong full pulse, and thirst. On the 23d he was bled to twelve ounces, and took a solution of emetic tartar, by spoonfuls every hour.”

“July 24th. The delirium obliged us to lash him down, as five or six men were
not

not able to confine him. He sweated profusely, more, I believe, from his efforts, than the medicine. Therefore the dose of the solution was increased; and he was again bled to fifteen ounces."

" 25th. With the advice of Mr S——, a blister was applied to his head. Still the most violent symptoms continued or increased. At twelve o'clock a considerable alteration appeared in his countenance: and, at three, he expired."

Twenty cases of fever appear to have terminated fatally: eight deaths happened near Sumatra, in December, 1772; four in January following; and the rest during the voyage. In many cases a spoonful or two of the decoction of bark are supposed to increase the action of the vessels, which is therefore left off. Great care seems to have been taken in watching for an opportunity of exhibiting the bark, but attending symptoms we are told contraindicated its use.

The Surgeon himself was seized with this fever. The following is the history of his case.

" Dec. 28th, 1772. I was myself very feverish about four o'clock this afternoon. I had eat little for a week past, I found
my

my pulse quick and full, with a throbbing in the temporal arteries, particularly in the left side."

" On the morning of the 29th, I was much the same. I had great lassitude, and disinclination to get up. This I imputed to the tartar emetic, of which I had taken four doses of one grain, last night, at the distance of three hours; after losing eight ounces of blood. I sweated profusely in the night."

" 30th. I found my throat a little sore."

" 31st. I applied *mel Ægyptiacum* to the ulcers, and took the decoction of bark with pleasure, five or six times every hour. But my stomach would not bear it, which alarmed me much." He then recollected that porter was recommended by an eminent Surgeon to one of his pupils, in a similar situation. "I tried a glassful, and found no ill effects from it. In about an hour I took another glass, which I was astonished had no effect upon my head. I then took a glass of the decoction of bark very well."

" January 1st, 1773. I immediately began with the porter, port wine, and the decoction of bark alternately. I had an
amazing

amazing spitting, I suppose to the quantity of a quart a day nearly. I applied *mel Ægyptiacum* to clear the floughs."

" 2d. I was astonished that I never found myself giddy, nor that my spirits were raised by drinking two bottles of porter, and one of red wine."

" 3d. I thought myself better: continued the porter, wine, and decoction; and, being costive, took half a dram of rhubarb."

" 4th. I find myself relaxed and weakly: shall go ashore to-morrow, and get the sick into the hospital at fort Marlborough."

" 6th. I continued the decoction of bark twice or thrice a day; and am recovering fast."

All that I have to observe on this case is, that I wish the Surgeon, who appears to have been a benevolent man, had sooner personally learned the debilitating effects of a contagious disease; and that a similar cordial regimen had been directed for the men on board of this sickly ship.

THE PRINCESS ROYAL, sailed December 15th, 1772, to Bencoolen and China; and arrived in the Downs the 30th of May, 1774.

Dr. Badenoch, who had the care of this ship, having offered some excellent observations

vations on the fever, which prevailed on board the NOTTINGHAM, at Johanna*, I expected great pleasure from the perusal of the extracts of his journal†. The following is the first case of fever recorded.

“ DAVID

* “ During the rage of the Johanna fever, I began the cure with evacuants, &c. in expectation of procuring a plain remission or intermission: but I found myself much deceived; for it assumed the appearance of a continual, with now and then violent exacerbations, under which several sunk. Fearing this might be the fate of the greatest part of those at the same time ill of this fever, I, without further delay, gave between thirty and forty patients in the different stages of that fever, one drachm of the *pulv. cort. peruv.* in wine, or in wine and water; and this to be taken hourly. Several were, at the time of administering this remedy, seemingly within a few hours of their end, with the pulse sunk, and an almost universal coldness of the body, who yet, after a few doses of the bark, were much better, and by continuing it for a day or two, recovered.”

“ I observed, that this medicine was so far from preventing natural evacuations, that, on the contrary, it promoted them, especially if evacuants had not been given previous to its administration; and further, that those who took this remedy *earliest*, recovered more perfectly than those who, by evacuants, and the severity of the disease, had suffered much before it was used. Which observation, when joined with this, that recoveries in the torrid zone are slow and uncertain, are strong arguments in favour of the early administration of this medicine. And as for the dose of it, the practical rule of Dr. De Haen, I believe, is, in these fevers, a very proper one, viz. *Neque pondus hic quidquam aut mensura determinat, sed morbi levamen.*” *Medical Obs.* Vol. IV. p. 166.

† Many remarks in this journal being important, I shall present the reader with the following extracts. “ The weather being

“ DAVID MORE, Seaman, aged 28, became yellow on the 27th of January, 1773, and vomited much bilious matter. Pulse not quick. Solution of emetic tartar prescribed.”

“ January 28th. Pulse feverish, with constant heat on the skin, and other
symp-

being mild, catarrhal complaints were less frequent than usual on first setting out from England, in the winter season.”

“ Entering the torrid zone, on the 3d of January, 1773, catarrhal complaints vanished,” and it is added, “ that we may soon expect those of another *genus*.”

“ Thermometer 67° latitude, 18° 19m. N.”

January 13th. The ship anchored in Praya Bay, on the south end of the island of St. Jago. The thermometer ranged from 72° to 73° , which was lower than Dr. Badenoch had ever observed it between the tropics. The ships company were well supplied with vegetables and fresh provisions; and continued healthy.

“ Three Dutch East India ships, which were then in Praya Bay, had buried from seventy to eighty men each; and had some hundreds sick on board.”

“ January 22d, in latitude 9° 15m. N. the thermometer was at 70° . Several were seized with bilious vomiting and purging.”

“ On the 31st of March, the Princess Royal anchored at Table Bay, with a healthy ship's company, having no complaints except a few catarrhs; owing to a sudden change of climate from extreme heat.”

“ Before we left Table Bay, several Dutch ships arrived; some of which had buried eighty people in the voyage from Holland. None lost less than forty men. I am informed
that

symptoms of bilious fever. The solution of emetic tartar was continued.

“ 29th. Easier. The solution of emetic tartar vomited him ; but did not operate downwards. A bolus, with lenitive electuary, and five grains of calcined mercury, was prescribed.”

“ 30th.

that some of their ships, last year, in a voyage to this place, buried 200 men. An amazing mortality indeed ! but owing to the crowding of many people ; keeping the ships horribly dirty ; and taking double the time to perform this voyage, that the English, and other European ships generally require.”

“ At Fort Marlborough, bilious complaints,” in which is included the remittent fever, “ began to make their appearance amongst the ship’s crew, about the 18th of June, 1773 ; and, afterwards, became prevalent. Tartar emetic, or ipecacuanha was given ; and, sometimes both were united. The bark, when requisite, was exhibited on the third day.”

“ July 4th. The thermometer in the day 85°, at night 75°. The people who worked in the boats, and slept ashore, at Bencoolen, kept their health full as well, if not better, than those who lived on board, which is not commonly the case in similar situations.”

“ July 10th. Bilious complaints are still prevalent, chiefly of the dysenteric kind ; and what is not common, in hot climates, catarrhal symptoms are not unfrequent ; and, sometimes, are conjoined with the former. The coolness of the nocturnal air, succeeding a hot day, seems to be the efficient cause.”

“ August 5th. The predominant disease is dysentery, which appears evidently to be spreading by contagion ; which we must endeavour, by every possible means, to prevent.”

“ Aug.

“ 30th. Nausea, vomiting, and fever continued; *calor mordens* on the skin. The bolus was repeated.”

“ February 2d. The vomit operated briskly, and brought up a great deal of bilious matter; which diminished the oppression on the *præcordia*, raised the pulse,

“ Aug. 9th. Although we have had so many dysenteries, yet I have hardly observed one of them to be attended with fever; which is contrary to the general opinion of authors on this subject.”

“ Aug. 11th. The bilious diseases, having gone through most part of the ship's crew, are now on the decline. Coughs and stuffed lungs are as yet, by no means, gone. Ever since we left Bencoolen, the great heat of the weather, obliging people to sleep in a current of air, is the cause of their continuance.”

“ October 10th. Catarrhal and intermittent complaints are better. Only eight upon the sick list.”

“ Dec. 10th. Left the coast of China for England.”

“ Dec. 12th. More healthy than any time during the voyage, having only two on the sick list. Our water, filled at Canton, is very indifferent. The transition from cold to hot weather has been very quick. Within forty-eight hours the thermometer has ascended from 57° to 79°. Latitude observed 16° 10 S.”

The ship arrived in health at the Cape, on the 23d of January, 1774. It is observed that they had been “plentifully supplied with all kinds of provisions. We brought away one hundred live sheep, and twelve carcases, abundance of onions, fruit, and cabbages.”

“ March 27th. Got thirty large turtles at the Island of Ascension; many of them were above five hundred weight. One is sufficient for our ship's company in one day.”

“ April

pulse, &c. This day however he was very feverish. The solution of emetic tartar was continued."

" 4th. This man has taken two emetics, several doses of the solution with tartar emetic. He is, however, this day, worse than ever; having great weakness and other symptoms which appear very dangerous."

" 5th. The symptoms increased; pulse excessively quick, and weak: anguish, tossing, &c. We endeavoured to give him
the

" April 24th. Our people are very healthy: not the least appearance of scurvy, as too generally happens to those ships, who have not touched at the Cape of Good Hope, or Ascension."

" May 8th. Our people very healthy, though we have had a foul wind for fourteen days. Neither scorbutic, nor catarrhal complaints have made their appearance."

" May 29th. For these several days we have been in the English channel. No appearance of the scurvy although we have been eleven weeks at sea."

" May 30th. This day we arrived in the Downs, after a voyage of seventeen months and nine days."

" Considering the amount of our ship's company (which has, upon an average, been about one hundred and fifteen during the voyage) and the sickness which usually prevails in the ships, which stay so long on the west coast of Sumatra; the number of those who have died of diseases and accidents are very few. We lost five by diseases, and two by accidents."

the bark, but without success. All the symptoms increased, and he expired about eight o'clock in the evening."

“ There appeared no evident signs of putrescency either during the progress, or towards the termination of the distemper. I found it impossible to get rid of the load and anxiety of the *præcordia*, although I prescribed emetics and antimonials,” the continued use of which, no doubt, increased the disease.

This attentive Physician, notwithstanding he had so successfully departed from the established rules in the fever of Johanna*; yet, at sea†, in a former voyage,

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and

* See note p. 476.

† “ For the cure of the bilious fever, most frequent while at sea, bleeding in the beginning, especially in athletic constitutions, was generally necessary; after which, and the use of antimonial medicines, and saline mixtures given in the act of effervescence, the fever soon came to intermit; and then the *cort. peruv.* being administered for a few days, completed the cure. Although this method will, in general, succeed for the cure of this fever while at sea; yet I have observed, that now and then some of these fevers were as violent as those usual in a port; and unless the same method of cure was followed, viz. by giving the bark, without waiting for an intermission, the patient was carried off in a very short time.”

and in the beginning of this, acted, in general, very differently. When the patient becomes weak, by the continuance of the fever, and the use of antimonials, we find him indeed flying to the bark to use his own words, as the “only resource.” But no doubt the fatal termination of the case already related, and the narrow escape of another, recorded in the Journal, would induce him, afterwards to give the bark more early. However this may be, no more patients affected with fever died under his care. And, during this unhealthy voyage, he was very successful, having lost only five by diseases, viz. one of a distemper in the chest: one of the fever already mentioned: one of inflammation of the intestines: one of dysentery: and one of a disease, to which no name is given in the extracts before me.

THE

“ I shall here observe, that whenever these fevers do not proceed with such rapidity as to threaten immediate danger, it is, no doubt, advisable to begin their cure by the use of the preceding remedies; but if, on the contrary, the pulse and strength fails, or the exacerbations become severe, with other symptoms of impending danger, the *cortex peruvianus* is the only medicine to be depended on.” *Medical Observations and Inquiries*, Vol. IV. p. 161 and 165.

THE Journal of the DUKE OF PORTLAND, commences the 20th of February, 1773, and ends the 18th of June, 1774.

The practice in fevers, after bleeding, consisted in the use of antimonials for four days. During this time the symptoms increased. The bark was then prescribed with its usual success. But the disease being suffered to continue so long, the patients became afterwards liable to the scurvy *.

To some the bark was given more early, and the cure seems to have been more speedy and complete, as happened in the case of the purser; from August 14th to September the 22d, 1773.

THE KENT to and from Canton, 4th Dec. 1772, to July 16th, 1774. The journal ends April, 1773.

“JOHN MARK, aged 27, was taken ill with the *bilious* fever on the 2d of February, 1773; and had a solution of emetic tartar and manna, which vomited and purged much.”

H h 2

“On

* Tents were erected for the sick at Java, where they soon recovered from the scurvy. But, it is remarked, August 15th 1773, that the dysentery became prevalent amongst the ship's company, during the time the vessel remained at that island.

“ On the 4th of February, a saline mixture was prescribed; and twenty-five drops of tincture of opium at night. The vomiting and purging still continuing, and the patient's skin being hot and dry, one grain and a half of ipecacuanha, and two grains of opium were given at bed-time.”

“ On the 8th his pulse being low, weak, and quite small, three spoonfuls of a mixture (composed of one ounce of bark, one dram and a half of snake root, and a pint of port wine) were given every third hour.”

“ February 9th. Still very low and weak. Pulse frequent and small. Cold sweats.”

“ 10th. Continues his medicines. His only complaint weakness.”

“ He continued to recover to the 16th of February, when he left off his medicines; and, afterwards, went every day upon deck.”

“ Feb. 23d. He was taken with a reaching of bile in the night. In the morning, when I saw him, his pulse was very small and quick. He had cold sweats, and constant throwing up of bile.”

“ A

“ A spoonful of a solution of one grain of emetic tartar, and half an ounce of manna, in one ounce of water, was given every hour. Afterwards two spoonfuls of a fix ounce mixture (containing one dram and a half of cordial confection, and thirty drops of tincture of opium) were prescribed every four hours; with an anodyne draught at bed-time.”

“ Feb. 24th. Pulse quick. Skin very hot. He had vomited several times in the night. His thirst is unconquerable. His skin yellow. The mixture was continued. He died in the evening.”

“ We left England with a very healthy ship's company. Had only some slight colds, and venereal complaints. We continued healthy, till February 1st, the weather being exceedingly hot with very little wind. At this time the *bilious* fever, made its appearance. In the first week I had two or three new patients every day; and the disease increased so fast, that the sick list, from the 7th of February to the 20th of March, amounted to fifty and sometimes to sixty daily. Of seventy-five soldiers, only three escaped the distemper. For the first three weeks, it was wholly

confined to the soldiers. It afterwards attacked the seamen; of whom one-third were affected. Those who were first seized had the disease in a milder form, than those who had it later: and, what I never observed before, almost every one relapsed, and was nearly as bad as at the first seizure."

"My treatment the second time, was the same as at first, only I gave smaller doses of the medicines as the patients were weaker. I observed almost all those, who had taken large doses of the bark, complained of fixed pains of the right side, greatly affecting their breathing*. As the patients were not in a state to bear bleeding, I applied blisters, at first, which afforded

* Here an effect is taken for a cause. This seems to be the common error of those gentlemen who have written on the diseases of hot climates; and of many of the Surgeons, who practice on board the East India ships. Fevers, indeed, when not speedily subdued, in every hot country, especially in unhealthy seasons and situations, very commonly induce infarction of this organ. But it is erroneous to charge the bark as the cause: if it be given early, it will seldom fail in removing the fever, and consequently will prevent its force from falling on this organ. In the fever of Senegal, where not a grain of bark was given, the distemper became contagious and mortal, often ending in fatal obstruction and suppuration of the liver. See Part I. p. 154.

afforded little relief. As I had always found great advantage from calomel in liver complaints, I prescribed it to the quantity of six grains, with a scruple of rhubarb every third day. The first or second dose often gave relief, and I found great advantage from the continued use of it. When the patient could not bear purging I used mercurial ointment; but never with the same advantage, as resulted from calomel."

Those who relapsed were very long in recovering their strength, and I fear would have been much longer, had we not put into the Cape of Good Hope; where we got plenty of all kinds of refreshment. Most of our people had been sick, and were still in a very weakly state, and could not use the ship's provisions. We were only eight days at the Cape. I was on shore most of the time. When I came on board some of our people who had been very ill, were so much altered for the better, I scarcely knew them.

"Four soldiers were carried off by the fever on board of ship. And one seaman was taken ill at the Cape, and died very suddenly."

In the history of this journal, we still find the great advantage of the bark, though given too late, as much fewer died than in other sickly ships where it was not exhibited.

Great merit is due to the Surgeon of this ship, for the means he used to prevent the scurvy, both in this and in a former voyage. The method he followed shall be taken notice of, in the third part of this work.

THE EXTRACT from the Journal of the TALBOT commences April 25th, 1775, and ends May 7th, 1776. My honoured friend, the late Sir Charles Hudson, was still the commander; and my much respected friend, the late Mr Gandy, chief mate. They were equally distinguished for their humanity and attention to the seamen; who, even in a sick bed, were comparatively happy under their protection.

The greatest praise is also due to Mr Collie, the Surgeon of the ship, who had the singular satisfaction, in a voyage of twenty months, of only losing *one* man, and that one, not by any disease of the climate, but by the small pox.

In the extract from the Journal, before me, it is not mentioned to what part of India the ship was bound. But, if I mistake not, she went to Madras and China.

The practice in fevers, after the use of antimonials, consisted in continuing the bark freely. It is added, in the extract from the Journal, "that after the sick began the bark they recovered in seven days."

THE JOURNAL of the HAMPSHIRE commences February 23d, 1775, and ends April 20th, 1777.

The Medical practice consisted of bleeding and antimonials in the beginning; and, afterwards, the bark; which, when continued with perseverance, often succeeded.

When an apparent remission encouraged the early and steady exhibition of the bark, all seems to have proceeded prosperously: but when an apprehension of bile in the first passages, or of inflammation suggested the continued use of antimonials, debility was the consequence; and when recourse was had to the bark, in the latter
stage

stage of the disease, the cases too generally terminated fatally.

This ship arrived at Fort Marlborough, January 17th, 1776. The Surgeon was there seized with a tertian, which prevented his attendance from the 17th of January, to the first of September.

The OSTERLY East Indiaman and two country vessels were, at the same time, at Fort Marlborough. It is added "many gentlemen are dead, and none has escaped a severe fit of sickness."

Twenty-two cases of fever are mentioned, fifteen of which terminated fatally: but, in none of those was the bark exhibited till a day or two before death, and then only in decoction.

Six cases terminated fortunately, in which the bark was given in powder early in the disease. One patient, labouring under fever, was sent on shore; but the sequel of the case does not appear. Eight of the deaths happened from the beginning of November, to the end of December 1775; but, the extracts do not ascertain in what latitudes.

The

The rest of the deaths appear to have taken place whilst the vessel lay at Fort Marlborough.

To guard the inexperienced against the insidious nature of the remittent fever, I cannot forbear mentioning, as it is a common occurrence in hot climates, that one patient, who, for some days, had laboured under mild symptoms, on the 24th of December, 1775, was seized with a violent paroxysm, which proved suddenly fatal. The treatment pursued consisted of a vomit, and afterwards a solution of emetic tartar.

With the same view; and also to shew the danger of temporizing; and delaying the bark, I shall dismiss this Journal with the following history.

“GEORGE MELZIER was taken ill on the 20th September, 1776. After the use of an emetic, either the saline julep, or a solution of emetic tartar was persisted in to the 24th.”

“On the afternoon of the 24th, he had a remission of the febrile paroxysm, during which some of the decoction of bark was given. The fever again returned in the night with delirium, and great
op-

oppression about the *præcordia*. His face looked fuller than usual; and the left eye lid was filled with a ferous fluid."

"Next morning he seemed rather better; but, as he was talking to one of his messmates, he was seized with convulsions, which suddenly carried him off.

THE JOURNAL of the BUSBRIDGE, to and from Bengal, from May 12th, 1782, to May 19th, 1783.

The Antiphlogistic method was at first pursued; but the Surgeon became sensible of the mistake; and expressly declares that the bark and wine were the only remedies, together with laxatives, clysters, and diluents; from which he found any service in the second stage of fevers.

But the exhibition of the bark, it would appear, was still too late, for sickness became very general and the mortality great.

THE JOURNAL of the LASCELLES; to and from Madras and China, from the 12th of February, 1783, to July, 1784.

This ship was healthy for three months after her departure.

"During

“ During our passage to Madras*,” says the Surgeon, “ we buried five of the ship’s company ; and fifteen of the soldiers ; and landed the remainder fitter for an hospital, than the field.”

The disease which proved fatal was a fever, which became so prevalent, that “ fifty of the ship’s company were attacked ; and, of one hundred and fifty-one soldiers, only one escaped the infection. Some relapsed seven times.”

With respect to the treatment, “ When the *inflammatory* symptoms were great, an emetic was given in the very beginning ; but, during the early part of the voyage at least, there were few cases that would admit of this practice without large repeated evacuations.”

In this fever, saline medicines and antimonials are said to have been of great service. “ The bark, in the low state of the disease, was tried, in a number of cases ; but it is said never to have answered
the

* The extract does not specify at what island the ship touched for refreshment. But, it would seem, that the passage means the run of the vessel from the place of refreshment to Madras.

the Surgeon's expectation*. "After a crisis had taken place," it is added, "I found the bark an excellent restorative; and have no doubt it was of great use in preventing relapses."

THE YORK, to and from China, from the 2d of March, 1783, to the 12th of July, 1784, is represented to have lost very few men. The practice which Mr. Ellis adopted is given in the following extract from the journal. "The remarks which Dr. Clark has made, particularly respecting the remittent fever and the flux, merit the highest attention. Throughout the whole course of the voyage; I have followed his mode of treatment, as nearly as possible; and, generally, with the greatest success."

THE

* It is not to be wondered that the bark had so little effect at this period of this contagious fever; when the use of every medicine must have been extremely precarious. The same result happened to the late celebrated Sir John Pringle who never gave it till the last stage of the jail fever. But although his authority, in other respects, is deservedly great, yet no person ought to follow his practice in this disease, for he candidly confessed that, at Ipswich, he lost more than one-fifth of his patients. *Pringle on Diseases of the Army*, 6th Ed. p. 312.

THE EARL SANDWICH performed a voyage to Madras and China, from the 14th of January, 1783, to the 6th of April, 1784.

“Mr. Bruce, the Surgeon of the ship,” says the Physician who examined the Journal “followed the same plan of treatment, as Mr Ellis, and with the same success.”

My correspondent, to whom I am so highly indebted, observes, “that the remittent fever was very prevalent and fatal amongst the ships, at Bengal, after the rainy season in 1783; except to the OXFORD, which only lost three or four men; and to the BARWEL, which did not lose so many.” After the remittent, an ague was very frequent, in the middle of October; which usually degenerated into a continued fever, or dysentery; and in those forms, proved mortal. Several of the sick, ill of these complaints, belonging to the HALSEWEL, were sent to the Hospital at Calcutta. The Surgeon there, attributing the obstinacy of the diseases to visceral obstructions, prescribed mercury till it salivated, along with the red bark. But the Gentleman who attended

tended the ship observes, "that this practice was attended with no better success; for, at the end of six weeks, we had lost four men; and the recovery of the rest did not appear to be, in any degree, forwarded. When the men returned on board, we saw the pernicious effects of the great quantity of mercury. Those who had undergone a salivation were all seized with fluxes. Of sixteen, thus treated, only four are now alive; and two of those, who were unable to perform any duty during the homeward voyage, are now in a reduced state."

The judicious Physician, who perused the journals, observes, "that the bark was either not given liberally in the beginning of remittents and intermittents; or that its use was suspended to make way for antimonials, laxatives, or emetics." Hence we see the necessity for the cautions, which have already been delivered in the second part of this essay*.

The extracts, in my possession, do not ascertain the rate of mortality in the ships, during their stay at Bengal, in the sickly season

* See page 300 et. seq. p. 416.

season of 1783. But, in the following year, I am informed by Mr. Magennis, that the VALENTINE, of which he was Surgeon; and *six* other ships stationed at Cogeree, lost, at that place, one hundred and seventy men. "The diseases, which prevailed, were remittents and intermittents, and the dysentery; all generally attended with diseased *viscera*. A few died of remittents; but the principal number of dysentery; which generally attacked those recovering from fevers *."

To proceed farther with the reports of ships individually, in which fevers prevailed either at sea, or in the harbours of India, would only be a repetition of events, which have already been sufficiently exemplified. I shall therefore take leave of this painful part of my subject, with observing, that the reader must not infer, that voyages to India commonly exhibit such dreadful scenes of disease and mor-

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tality,

* Mr Magennis revisited Bengal, in the Barrington, in 1789. Eight East India ships lay that year at *Diamond Point*, which is esteemed much more healthy than any of the former stations in the river Hughley. Forty men were buried at Diamond Point, this year; which, on an average, is only five men to each ship.

tality, as have been presented to his view. On the contrary, when ships set out at a proper season; when they are not too much crowded; when the weather is favourable; and no mismanagement happens, fewer lives are lost, in these long voyages, than in the most healthy country villages. And, in perusing the medical journals, I have the peculiar pleasure of finding that many ships have arrived in India, without the loss of a single life by disease*.

In the reports of particular ships, I have concealed the names of the surgeons, where sickness and mortality have been considerable. None wish to be held out, to public view, as the authors of unsuccessful practice. The recording of such events however, although humiliating to the profession, is necessary for its improvement. And

* Amongst many instances which might be adduced of the health which ships enjoy in these voyages, I shall only mention to the honour of the officers, and to the attention of Mr Magennis, "that the VALENTINE, in 1784, and the BARRINGTON, in 1789, did not lose a man during the outward passage, although the former was seven months in performing the voyage, and the number of souls on board fell little short of three hundred. In the homeward passage, these ships only lost two men each; all of obstinate dysenteries, which they had contracted before the ships left Bengal."

And if the unsuccessful methods of treating diseases were more generally published, greater advantages would result from them, than from the innumerable histories of successful cases, with which medical publications abound.

Much praise is due to those surgeons, who have been unfortunately stationed in unhealthy ships, for the candour, with which they have recorded the success of their practice: and the care, which some of them have observed in keeping their journals, is an evident proof that they wished mankind to profit by their observations. They, in general, appear to have been ingenious and well informed men. Several of them suffered sickness, and not a few death in the exercise of their profession. And when disease, like a general conflagration, spreads amongst the crew on board of ships, considering the want of accommodation, of necessary articles of support, of attendance, and, perhaps, even of proper medicines, great mortality must ever be the consequence.

But this is not all: if they failed in preventing the ravages of disease, it was by following the treatment proposed by

authors of great eminence. And every one of them may adopt the words of the candid and ingenious Dr. Schotte, who was still more unfortunate in treating the fever of Senegal, "what can a young practitioner do better, than follow the rules and precepts, laid down by celebrated clinical professors *?"

I cannot conclude this report without offering a few remarks on some improvements,

* This ingenious Physician acknowledges, that he was prevented from prescribing opium to allay the vomiting in this fever, by the cautions of eminent authors. Clinical authors, he observes, had also interdicted the use of the bark, except in intermissions and remissions of fever. But when too late, at the end of the epidemic, he ventured upon opium and bark. No more were then alive, except three patients. In two the practice succeeded; but it failed in the third. When this unsuccessful case, however, is related, it is no wonder that it should have terminated fatally. The patient "was quite exhausted before I gave him the *laudanum*. It was on the third day of his being taken ill; and after it had put a stop to the vomiting as well as the *singultus*, I gave him the bark. On the fourth and fifth day his body, but particularly his face, began to swell in such a manner, that his eyes became quite closed by it, and the breast turned of a yellow, green and blue colour. He resembled a corpse in the highest degree of putrefaction, in which the air has begun to disengage itself and puff up the skin, a circumstance which I had not observed in any other patient. On the sixth day a *singultus*, or rather a belching, took place again, and he expired on the seventh." *Schotte on the Fever of Senegal in 1778.* See also Part II. p. 153.

ments, which, it is apprehended, might be made in the medical journals, in the ships in the service of the East India Company.

At present the journals, which are ordered to be kept, consist of a medical day-book, and another book intended to contain particular cases and observations. These, if regularly executed, would afford much information; but, in the perusal of them, a great deal of time is unnecessarily wasted; and they seldom comprehend a full view of the business.

The day-book is divided into columns for entering the names of the sick; the date of the application; the symptoms of the disease; the prescriptions; and event of the case. If this book were regularly kept, it requires no improvement.

But in the Journal; which is composed from the day-book, much advantage would accrue from executing it in the following manner. Let it contain a short account of the method of treating every disease which occurs, with a few cases in illustration: and also let it comprehend a table of the MONTHLY RETURN of every disease,

and a GENERAL RETURN * of all the patients at the end of the voyage.†

By inspecting these tables, any person, at one view, would be enabled to ascertain the rise and progress of diseases during every part of the voyage, and the success of the practice. These tables would be also of the greatest advantage to the surgeon who constructs them, for when much sickness happens, without their assistance, he may long persevere in erroneous modes of treatment, without either detection or suspicion.

To the Physician, who signs his approbation of the Journals, these tables would be of the highest service. They would shew the comparative sickness and mortality

* See *Specimens of these Tables*, No. II. and III. in the Appendix.

† In my observations on fevers, &c. published in 1780, I shewed the great advantage, which would result from keeping complete and comprehensive tables of MEDICAL RETURNS; to which the reader is referred. Besides the above tables others appear to be necessary, particularly the one which contains the diseases, and opposite to each disease the number of males and females affected with it, in the different divisions of life. But on board of ships, the above two tables will be sufficient for giving a view of the sickness and mortality which may happen.

tality in every ship, and ascertain the most successful modes of treatment.

But these are not the most important advantages which would accrue from the Journals thus managed. At proper periods, a report ought to be published at the expence of the East India Company (drawn up by their Physician, or by a medical board) and copies presented to each Surgeon in their service. By conducting the business in this manner, ingenious men in the service of the company would be stimulated to offer their observations; the treatment of diseases would attain to the highest possible perfection; and consequently an immense number of lives would be saved to the community.

P A R T I I I .

O B S E R V A T I O N S

O N T H E

M E A N S O F P R E V E N T I N G D I S E A S E S

I N

V O Y A G E S T O T H E E A S T I N D I E S .

P A R T III.
O B S E R V A T I O N S
O N T H E
M E A N S O F P R E V E N T I N G D I S E A S E S
I N
V O Y A G E S T O T H E E A S T I N D I E S.

I N T R O D U C T I O N.

IN reviewing the history of our expeditions to the East Indies, from their first commencement to the present times, we find that they have been occasionally attended with great mortality. The first squadron, which sailed from England, in 1601, for the establishment of the East India Company, under the command of Admiral Lancaster, consisted of four ships, containing four hundred and eighty men. In less than four months, at sea, and on shore

shore at Saldania, a bay on this side of the Cape of Good Hope, there died of the scurvy and other diseases, one hundred and five men, or nearly one fourth of the whole complement *.

In this early voyage, however, we have the satisfaction of observing the great advantages, which resulted from means of prevention. Three of the ships had so many ill, that they could not navigate their respective vessels without the assistance of the merchants, who had embarked to dispose of the adventure; and, they were in so weak a condition, that they could not hoist out their boats, when they arrived at Saldania. The Admiral's ship (although it contained near double the number of men of any of the others) continued, at the same time, pretty healthy, owing to his having taken some bottles of lemon juice on board; of which he gave three spoonfuls to each man, every morning, so long as it lasted.

When we descend to the present times, we find that we have not been more successful

* *Purchas' Pilgrim*, Vol. I. *Harris's Collection*, Vol. I. The last author makes the deaths amount to 150, at sea, and on shore at Saldania.

cessful than our less experienced ancestors. In the course of this inquiry we have already seen the great mortality which has happened to several ships in the service of the company *, and even to the crew of Captain Cook's ship in his first voyage †.

During the late war, it is also well known that the fleet, under the command of Sir Edward Hughes, in the East Indies, was so weakened by the scurvy, and other diseases, that, in many of the actions with the enemy, few or none of his ships had a sufficient number of men to work the guns.

The sickness which happened to the 100th regiment; to the 98th; to the 2d battallion of the 42d; and four additional companies, at the island of Johanna, has also been mentioned ‡. But the sufferings of these ill fated troops were great beyond description during their voyage from Saldania, till they arrived at Bombay. Being crowded and ill cloathed, a contagious fever, and the scurvy appeared amongst them. The ship's company also became,
in

* See Page 39, 123, 392, 473, 489 et seq.

† P. 122.

‡ P. 40.

in proportion, sickly. The sum of mortality, occasioned by those destructive diseases, is not ascertained; but it must have been very great: for the author of the account, who was an officer of one of the regiments, and an eye-witness of the lamentable catastrophe says, "that men were thrown over-board by dozens: the mind, soon accustomed to such scenes of distress, became nearly callous to the feelings of humanity; and even the last groans of a brother officer or foldier produced but a feeble paroxysm of grief and subsided with a sigh."

By missing the tract pursued by skilful navigators, instead of landing at Bombay, the fleet was obliged to bear away to the coast of Arabia. Here his majesty's troops divided; and part of them, in the men of war and in transports, went to Madras. The remainder of the 100th regiment; three companies of the 98th; and the four additional companies arrived at Bombay, after a passage of eleven months and twenty-two days.

Here a continuation of errors still brought on fresh diseases: for by an exertion of military discipline, during the heat
of

of the day, many perished by a *coup de soleil* and the cholera. The author observes that this singularly unfortunate body was diminished to one-third of their original number, before they saw a shot fired, except the cannonade of the French and English squadrons at Praya Bay*.

The mind shrinks with horror from the relation of such dreadful scenes of human misery; and is still more deeply affected, when it is ascertained, beyond the possibility of a doubt, that by proper attention of the government, which directs such expeditions; and of the officers, who are appointed to conduct them, the mortality might be almost entirely prevented.

From what has been advanced in the former parts of this essay it appears, that the diseases to which Europeans are subject in long voyages, and in the various harbours of India, are few in number, and the causes from which they originate extremely limited. It also appears, that whilst one ship is affected with diseases, another, by using proper precautions, is almost totally exempted from ailments. These

* *Remarks upon the causes of diseases amongst new raised troops upon long voyages, 1788.*

These circumstances afford the strongest proof that sickness is not an inevitable evil, but, in general, the consequence of inattention and mismanagement.

The report from the Journals of the India ships * for fifteen years, previous to 1785, evinces the practicability of preventing diseases and mortality in long voyages. And the experience and example of the late Captain Cook ought to convince every commander how much it is in his power, and how much it is his duty to preserve the health of the crew intrusted to his care !

This humane and illustrious navigator, deeply affected with compassion for the death of one-third of his crew at Java, and in his run from thence to the Cape of Good Hope †, began to pay the utmost attention to regulations of health, in his subsequent voyages. In his second expedition to the south seas, in the RESOLUTION with a company of one hundred and eighteen men, he had the singular honour, and satisfaction of performing a voyage
of

* Page 464 et. seq.

† P. 122.

of three years and eighteen days, throughout all the climates from fifty-two degrees north, to seventy-one degrees south; with the loss of only one man by sickness. And, after his death, Captain King revisited the same seas, which had formerly proved so fatal; and during a voyage of four years and upwards in the *DISCOVERY*, with a company of eighty men, he did not lose a single life by disease*.

The prevention of diseases must always consist either in removing the causes which produce them, or, when this cannot be effected, in counteracting their influence.

In prosecuting this subject I shall confine myself to a few remarks on the means of obviating the most powerful causes of diseases in voyages to India.

* *Cook's last voyage*, Vol. III.

C H A P. I.

OF THE DIET AT SEA, AND THE MEANS
OF COUNTERACTING ITS ILL EFFECTS.

THE provisions with which the East India ships are supplied are of the very best quality; and, with respect to quantity, exceed that in any other service. The daily allowance to each mess, consisting of five men, is eight pounds of salted beef, or seven pounds of pork. Instead of salted meat stock fish is served twice a week so long as it lasts. The fresh articles, as they are called, consist of three pounds and a half of flour for puddings, or two pints and an half of pease. In the homeward passage rice is commonly allowed instead of biscuit, and yams instead of potatoes.

The other articles are mustard, oil, and vinegar; and the crew are seldom put to a short allowance of biscuit. Each man is allowed one-fifth of a pint of British spirit in the outward passage; and arrack in

in the harbours in India, and in the voyage homewards.

The quantity of salted meat allowed is certainly too much; and, when other circumstances favourable to the production of the scurvy concur*, is a chief cause of the prevalence of that malady.

The only means of remedying the ill effects of a salted diet is to lessen the quantity, and to substitute other articles of nutriment calculated to counteract, or entirely defeat its baneful influence.

If an adequate quantity of coarse sugar and tea were allowed to the men every day for breakfast, as was proposed in the former edition of this work, the ill effects of a salted diet would be obviated. And this alteration, it is apprehended, might be adopted without any additional expence to the owners, as three-fourths of the salted beef and pork would be sufficient for the voyage.

The health which the crew of an East India ship commonly enjoys in their return from China to England is the strongest proof of the advantages, which might be

K k 2 ex-

* Part II. p. 419.

expected from the commutation proposed. The scurvy seldom makes its appearance in a voyage from China; which can be imputed to no other cause, but to the tea and sugar, which every seamen lays in at that port. In other respects the circumstances are the same, and the voyage equally tedious.

But should tea and sugar be thought too expensive in the outward passage, other articles may be substituted. Wheat cleared of its husks, by subjecting it to the same process as barley, will keep sound, in dry casks, for the longest voyage*. A sufficient quantity of this may be boiled with water till it bursts; and if it be sweetened with sugar, and one half of the spirit, usually allowed in the morning for drams, be mixed with it, when served out to each mess; it will constitute a pleasant,

* Boiled wheat when I was in the service was ordered by some of the Captains to their crew for a meal: and, it appears by the Journals that it has often been given for breakfast in the cold latitudes off the Cape of Good Hope. But so far as I know it has never been cleared of its husks, which always render it disagreeable. Therefore it is recommended that the wheat should be passed through a barley mill before it be taken on board.

fant, palatable, and nutritious breakfast. Instead of wheat, rice may be used in the homeward passage.

Wheat and rice are perhaps amongst the cheapest articles of aliment that can be used at sea. They, however, require an extraordinary quantity of water for boiling them. But if every ship be provided with a still, a sufficient quantity of this necessary article may be always distilled from sea water, to answer this purpose, when the ship is at any great distance from a port; or when the water on board becomes scarce.

But of all the correctors of a salted diet, none has been found so powerful as the juice of lemons, and oranges. Therefore as soon as a ship arrives at any island where these fruits abound, a sufficient quantity should be purchased for the company, as their juices will keep during the longest voyage, by mixing with them a proper proportion of spirit*.

K k 3 That

* One fourth of spirit is sufficient to keep the juice sound; but it will answer equally well when a greater proportion of spirit is added.

That so necessary an antidote against the scurvy may never be neglected, an order ought to be given to every commander to purchase and preserve the juices of these fruits; and to appoint proper officers to see them distributed to the sailors and soldiers in punch, instead of the pernicious drams issued out to them every morning during the voyage.

Another method of correcting the influence of salted diet, is to allow to each mess one pound or more of *sour krout* to be eaten with the beef or pork. This article may also be added, with great advantage, to the pease soup, whilst at sea; and to
broths

The surgeon of the Kent, who had been two voyages to India, brought the crews both times home without the least appearance of the scurvy. "In his first voyage, he sailed in company with his Majesty's ships the PORTLAND; and eleven EAST INDIA SHIPS. The PORTLAND lost men every day, at St. Helena, and in the passage home; and the India ships buried men during the voyages even to the Downs, and up to Gravesend."

The means which this humane surgeon made use of to preserve the health of the crew intrusted to his care, consisted of "thirty-five gallons of lemon juice, and a double quantity of arrack. Of this he made punch, with a due proportion of sugar and water, which was served out instead of drams." By this simple method he preserved his men; when the other ships in the same fleet, had the mortification of losing many.—

Journal of the Kent, in 1774.

broths made of fresh meat at St. Helena, or any other station, where vegetables cannot be procured in sufficient quantity for the use of the ship's company *.

Biscuit constitutes a very considerable part of aliment at sea: every method, therefore, should be used to keep it from becoming mouldy, and generating insects. It will be preserved longest sound, if packed in dry casks: and, whenever it

K k 4 is

* Nothing can afford a stronger proof of the powerful antiscorbutic virtues of *sour kroust*, than the following relation from Dr. George Brown, who was Apothecary to his Majesty's Hospitals, last war, in America.

“ In the fall, the scurvy began to make its appearance among the regiments that had been longest in America, and, as the cold weather advanced, it attacked the rest of the troops. A variety of medicines were used, most of which mitigated some of the symptoms; but no cure was effected till a quantity of *sour kroust* arrived from England, which was given to the scorbutics ad libitum, to eat as a salad with vinegar. At other times it was boiled with their meat; and it was really surprising to see the effect which it had, even in a short time. They devoured it greedily, and recovered apace.”

“ A great quantity of this useful article arriving, it was issued to the army twice a week, with their salt provisions. And it was as effectual in preventing, as it had been in curing that disease; which perhaps is, of all others, the most to be dreaded, in a garrison living on salt provisions, in a cold climate, and subjected to hard duty.” *Edinburgh Medical Commentaries*, Vol. IV. p. 137.

is likely to become moist, it should have a cast in the oven.

But as flour keeps longer sound at sea, takes up less room than biscuit, and, when fermented and baked, counteracts the ill effects of a salted diet, it is much to be wished, that a part of the crew of every ship, in daily rotation, were served with fresh loaves. As every East Indiaman has a baker on board, if he were exempted from doing the duty of a sailor, and provided with a proper trough, flour and yeast, a sufficient quantity of bread might be made to answer this purpose. When the yeast*, which is taken from England, becomes

* The last ingenious author upon the scurvy proposes that yeast should be preserved at sea, in the following manner:

“ Spread a thin layer of yeast on the bottom of a clean tub, or a small cask with one head taken out; turn the bottom upwards, till the yeast dries; then lay another layer, turn the tub in the same manner, and repeat it, till the tub is full of dried yeast.—This will keep good a considerable time.”

“ Another method is, by spreading yeast thin on clean boards, exposing it to a moderate degree of heat till its humidity is so far evaporated, that it has a granulated appearance, and feels dry to the touch; it is then to be put into small bottles, or phials, which are to be well corked and sealed.”

“ When yeast is wanted for brewing or baking, a pound of molasses may be mixed with a gallon of hot water; and, when it has cooled so as to be blood warm, or between the 90th and 100th degree of Fahrenheit’s thermometer, a little of this preserved

becomes deficient, good bread may be made by beating up flour and warm water in equal proportions; and adding to them one eighth or tenth part of porter. After covering them up for some hours, especially if the weather be hot, a fermentation will ensue; and then a sufficient quantity of flour should be kneaded so as to make the whole into light loaves, If a little of the old leaven be kept in the trough, there will not be occasion to add so much porter after the first time.

Sea provisions, in a peculiar manner, require dilution: it is therefore of much importance to take in fresh water at every port; and to use all possible means of restoring its sweetness when it becomes putrid in the course of the voyage.

Various proposals have been made by ingenious men to prevent water from becoming putrid at sea; and also to restore its purity, when it has become offensive
by

served yeast is to be mixed with it. Let them be stirred together and kept in a moderate degree of warmth, and a brisk fermentation will ensue, which will produce good yeast.”

“Honey or sugar may be used instead of molasses; and if a little porter, or stale beer are added, the fermentation will begin sooner.”—See an excellent *ESSAY ON THE SCURVY* lately published by Mr THOMSON, Surgeon in the Royal Navy.

by keeping. It has been proposed to add some lime to every cask; and also to impregnate the water with fixed air. The first mode renders the water disagreeable and unfit for culinary purposes; and the latter is too tedious and expensive to become generally useful.

When water becomes putrid the most simple and easy method of sweetening it, is to expose it to the air in a divided state. For this purpose a very useful machine was invented by Mr. Osbridge, a Lieutenant in the Navy, which has been long adopted in that service. "It consists of a hand pump, which is inserted in a scuttle at the top of a cask, and by means of it the water, being raised a few feet, falls through several sheets of tin pierced like cullenders, and placed horizontally in a half cylinder of the same metal." By this process the water is exposed to the open air in numberless drops, and the working of the machine is a salutary exercise to the men in fair weather*.

After water is thus sweetened, to render it still more salutary in counteracting the
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* Blane on the diseases of seamen.

ill effects of a salted diet, nothing has been found so effectual as to bring it into a state of fermentation, or, in other words to brew it into beer. For this purpose, the materials for tartar ale; or porter and sugar*; or essence of spruce and treacle, may be added to a sufficient quantity of water, which, will, with very little trouble and at a trifling expence, be converted into brisk palatable small beer.

The tartar ale will be the best drink between the tropics, porter beer, or spruce beer in the colder latitudes.

If the alterations which have been proposed in the aliments and drinks were generally adopted, and steadily pursued, along with other precautions to be afterwards recommended, the scurvy would never make any considerable progress in voyages to India. The seamen and soldiers would generally be landed in full vigour, and consequently would be better enabled to resist the endemic diseases of the country.

But although health would be, in a great measure, secured by adopting the pro-

* Part II. p. 427.

proposed alterations, yet when voyages to so distant a country are protracted by bad weather; or when ships are long detained in their passage through the Straits of Sumatra and Banca, diseases will more or less occur. It therefore remains to point out some articles, which will be required for the support of the sick, and the recovery of convalescents.

During the course of a fever or a flux, the cordials of the medicine chest afford no adequate support. And when the patients are in a convalescent state, with the digestive powers very much impaired, what nutriment will the common provision of the ships afford them? When I was in the service the sick had nothing else to depend upon, unless the humanity of the Captain allowed them wine and other articles of nourishment from his own table. But this being a very great expence for an individual, such gratuitous support must be always uncertain and precarious.

In the course of my last voyage in the Talbot near thirty dozen of wine were necessarily expended; and it may be affirmed that many of the seamen and soldiers, who otherwise would have fallen sacrifices to disease

disease and weakness, owed their lives to the humanity and generosity of the commander.

If an allowance of wine were settled in the service instead of depending upon the humanity of the commander, the other requisite articles of support for the sick and convalescents may be comprised in a small number, viz. portable soup, salep, sago, sugar, spiceries, and a few of the usual dried fruits.

C H A P. II.

OF THE MEANS OF OBVIATING THE ILL
EFFECTS OF HEAT, COLDNESS AND
MOISTURE OF THE ATMOSPHERE.

HHEAT alone, as has been already observed, is seldom productive of much mischief; but it weakens the body, and predisposes it to be more easily acted upon by other causes of sickness. It likewise is
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a frequent cause of apoplexy, cholera, and diarrhœa; especially when persons work hard, and expose themselves to the rays of the sun.

The best means to guard against the influence of intense heat are, to live temperately; to diminish the quantity of animal food; and to keep the body cool by light clothing.

The direct rays of the sun should be guarded against by stretching an awning over the deck, whilst the men are on board of ship; and by making them wear hats with high crowns when ashore.

When ships come to unload at Bengal, Madras, and other parts of India, the men should not be employed at the tackle in the heat of the day. The price of labour being so trifling, it would always be the safest plan to employ the native sailors of the country on this duty. If this were generally done, and officers careful in preventing the men from overheating themselves when engaged in other necessary work, and afterwards from exposing their bodies speedily to cold air, much sickness might be prevented, and many lives preserved.

Simple

Simple moisture is not productive of many diseases, so long as the men can be kept dry, and the ship clean. But if the weather be at the same time tempestuous, so as to oblige the ports to be shut, the air below becomes stagnant and impure, and diseases are to be dreaded.

The best means of correcting the baneful influence of such a state of the weather, are to keep the ship as pure and clean as possible; to open the scuttles in the ports for the admission of fresh air; to scrape and clean the births daily; to divide the men into three watches, that they may have time to dry their clothes; and, as soon as the storm subsides, to remove the hammocks and chests upon deck; to wash the ship thoroughly; and to dry up all moisture by placing stoves in various parts between the decks.

Cold and moisture, when long continued, never fail to produce the scurvy, except great care be taken to obviate their united influence. Besides the articles of diet already mentioned*, the next method of prevention consists in keeping the body dry and warm with proper clothing.

Every

* Page 514 et seq.

Every seaman, therefore, when the ship approaches towards the cold latitudes, should be obliged to wear stockings, a flannel waistcoat, and drawers; and when it rains, he should have a cloak, or great coat. If he have not a sufficient change of these necessary articles of apparel, he should be supplied with them, at a moderate rate, out of the slop chest.

The great advantages of clothing are always ascertained beyond a doubt in these long voyages. The petty officer, and even the attentive seaman, possessed of a proper stock of apparel, though living upon the common diet, long resist the scurvy, when those who are devoid of such necessaries, become martyrs to the distemper.

In this chapter, I have forborn pointing out the proper modes of washing and purifying the ship between decks; of admitting fresh air by means of windfalls; and of the purifications of the hammocks. The Captains and officers in the East India ships were so attentive to cleanliness and ventilation, when I was in the service; and, since that period, have made so many im-

improvements, that it would be superfluous to offer farther instructions*.

C H A P. III.

OF DEBILITY IN CONSEQUENCE OF FEVERS,
DEJECTION OF SPIRITS, INDOLENCE,
AND FATIGUE CONSIDERED AS CAUSES
OF THE SCURVY; AND OF THE MEANS
OF PREVENTION.

OF all the causes which pre-dispose to the scurvy none seems to have greater influence than debility induced by fevers. The accurate Kramer observes † that tedious fevers generally preceded the scurvy, which was so fatal to the Imperial troops

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* So early as the year 1775, it appears, by the Journals, that, in some ships, the decks were regularly washed twice or thrice a week, and the cable tiers, where the soldiers slept, as often swept and fumigated. During mild weather, the gun ports were always kept open, and, in stormy weather, scuttles in the ports for the admission of air.

† *Discertatio epistolica de scorbuto.*

in Hungary ; and from perusing the medical journals, this seems to have frequently been the case on board the East India ships.

The best means of obviating this cause of the scurvy are, to abstain from bleeding, the continued use of purgatives, and antimonials which are equally debilitating ; to give the bark early and liberally to subdue the fever ; and, when the patient is in a convalescent state, to restore his strength by as nutritive a diet as the ship can afford.

The great influence of despondency and dejection of spirits in inducing and aggravating the scurvy has been sufficiently ascertained by Historians as well as Physicians. The elegant writer of Lord Anson's voyage, in which this malady raged with so much fatality, observes, " That whatever discouraged the seamen, or at any time damped their hopes, never failed to add new vigour to the distemper, for it usually killed those who were in the last stages of it, and confined those to their hammocks, who were before capable of some kind of duty. So that it seemed as though alacrity and sanguine thoughts
were

were no contemptible preservatives from its fatal malignity."

Officers should therefore carefully prevent every kind of oppression on board of ships. The young and inexperienced frequently meet with ill usage from their self-sufficient messmates: and soldiers are too often wantonly mal-treated by the sailors. I have known so much dejection, despondency, and even disease from these causes that I could not pass them over in silence.

Low spirits and despondency can only be removed, or alleviated by exciting the contrary passions of cheerfulness and hope.

The influence of exhilaration of spirits, in relieving the scurvy, is astonishing. Of several instances which might be adduced I shall only insert the following from Mr. Ives' Journal. "Upon the British fleet coming into the Bay of Hiers," February 1744, "our men understood that the enemies fleet and ours were soon to engage. There appeared not only in the healthy; but also in the *sick* the highest marks of satisfaction and pleasure; and these last mended surprisingly daily, insomuch that on the 11th of February, the day we en-

gaged the combined fleets of France and Spain, we had not above four or five, but what were at their fighting quarters."

If joy and cheerfulness remove, for a time, a disease attended with so much dejection and despondency? How much more powerful must they be in obviating the first impression of the distemper!

Indolence is so powerful a promoter of the scurvy that every observer, in long voyage, has noticed its influence. A good officer will therefore guard against this cause by keeping the crew in proper exercise. It often happens that there is a long vacancy from labour at sea. At such times it would be of great advantage to the health of the crew to encourage them to engage in active diversions. For this purpose fencing and dancing are well calculated, particularly the latter, when accompanied with music, which, along with exercise of body, imparts to the mind pleasure and hilarity.

Fatigue has been esteemed one of the pre-disposing causes of the scurvy. But if the body be kept clean and dry, and due time allowed for sleep, it is to be doubted

doubted whether or not the malady would arise from fatigue alone. On board the East India ships, at least, the scurvy seldom originates from hard labour.

C H A P. IV.

OF THE MEANS OF PREVENTING THE DANGEROUS EFFECTS OF EXHALATIONS FROM THE LAND AT DIFFERENT ISLANDS WHERE THE EAST INDIA SHIPS TOUCH FOR REFRESHMENT; AND IN SOME OF THE HARBOURS IN ASIA.

THE pernicious influence of exhalations from the land on the health of Europeans at the different islands *; in the Streights of Malacca †, and in some of the harbours in Asia ‡, have been already recorded.

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* Page 39, 40, 120, 125.

† P. 46.

‡ P. 15, 48, 116, 130, 133.

corded. It now remains to offer a few remarks on the prevention.

Ships, touching at any of the islands in the outward and the homeward passage for refreshment, should be anchored at as great a distance from swampy shores, marshes, and thick woods as possible. At St. Jago, Johanna, Mohilla, and other unhealthy islands, the crew should not be suffered to sleep on shore; and every person should be ordered to repair on board before the night dews descend.

If proper regulations of health have been steadily pursued from the beginning of the voyage, there will be no occasion for pitching a sick-tent. And, if from neglect or mismanagement, the scurvy have become prevalent, it may be easily cured in a harbour, although the sick sleep on board of ship*.

But if a contagious fever or dysentery have become general, it will then be indispensably necessary to erect sick-tents. A convenient site should be chosen, for this purpose, at a distance from woods, marshes, and the oozy banks of rivers; and,

* Part I. page 11.

and, if possible, they should be placed on a dry spot, open to the healthful influence of the sea breeze.

A fire, in the night time, should be lighted in every tent. The men should sleep in suspended hammocks, or beds raised at a distance from the ground. Strict discipline should be observed, and no person allowed to roam into the woods at night.

Those who, from necessity, are employed in cutting down wood for the use of the ship, should be supplied with tincture of bark evening and morning. They should not begin to work before the sun has dispersed the fogs; and they should give over labour before the dews fall in the evening.

The company of ships which lie in the river Hughley at Bengal, and at Wampoa in China, suffer much from the effects of fogs and exhalations. Officers should therefore be upon their guard not to allow their men to be exposed to the night air. When necessity obliges them to send any of the seamen, in boats, to Calcutta, or Canton, they should be defended from the chill night air by proper clothing; and care

should be taken, that they do not row their boats near muddy shores, nor anchor them in ill ventilated creeks.

In sailing up the river, from the stations of the ships, to Calcutta and Canton, I have often experienced the temporary ill effects of nocturnal air, even when defended with flannel next the skin, and wrapt up in a warm cloak: and from my feelings, I am certain that, without these precautions, a fever or flux would have succeeded.

It is peculiarly necessary to guard the body against the ill effects of fogs and night air, when ships, in voyages to China, sail near the unwholesome shores of Sumatra and Java; or when they anchor at Bencoolen, or Batavia. In these situations half a glass of Huxham's tincture of bark* given to each seaman, evening and morning will be found a pleasant and excellent preventive.

C H A P.

* Tinctura Corticis Peruviani Composita Ph. Lond.

C H A P. V.

OF THE MEANS OF PREVENTING AND
SUBDUING INFECTION.

THE very name of infection formerly spread general panic, and too frequently deprived the sick of that humane attention which their helpless situation demanded. But it is now ascertained that the atmosphere never becomes contagious; and that, in the small-pox *, and even in the plague †, the infectious effluvia, whether issuing from the body of a patient or from substances imbued with matter or miasms, are inert at a very limited distance from their sources.

If the contagious effluvia of the small-pox by dilution with the air become innoxious in less than three feet from an infected patient, and if the propagation of this disease

* See Dr Haygarth's excellent *Inquiry on the Small Pox*.

† See Mackenzie, Dawes, Russel, and Howard on the *Plague*.

disease can be prevented by regulations, which important points have been ascertained by the ingenious and accurate Dr. Haygarth, every fear concerning fevers, which are of a less infectious nature, will be considerably diminished.

The methods of preventing the introduction of fevers in jails and guard ships have been judiciously treated by Dr. Lind, and Dr. Blane. But they have failed in cautioning the inexperienced against the infectious nature of the remittent fever, and in proposing adequate means for subduing it when the remissions are imperfect.

But this cause of general sickness in our fleets and armies has not escaped the penetrating genius of Dr. Millar*: And although

* “The most prevalent acute disease is a fever of the remitting kind, which, though it may sometimes strike fatally at the first attack, generally yields to a temperate cordial regimen, and a judicious use of the peruvian bark. When thus treated, though it may sometimes be communicated from the sick to those in health, yet it is quickly terminated, and does not arrive to any high degree of malignity or contagion.”

“But when, from a fixed opinion of the general prevalence of inflammation, profuse evacuations have been made, it has become putrid and infectious; and when this infection has been accumulated in jails and hospitals,” and in ships, “the highest degree of malignity and contagion has been generated.”——
Millar's Observations on the Management of Diseases in the Army and Navy, published 1783.

though the declaration be humiliating to the profession, yet I cannot help joining with him in opinion, that the antiphlogistic method of treatment, and long perseverance in the use of antimonials are not amongst the least causes of rendering fevers contagious and mortal.

To prevent infection from spreading on board of ships, the very first patient seized with fever should be removed to the most airy part of the vessel. Cleanliness and ventilation ought to be carefully attended to; the linen of the patient ought to be frequently changed; and every discharge, issuing from his body, should be received in a bucket with some sea water, which should be instantly covered, and its contents thrown overboard.

But all this will often prove insufficient, unless the bark be given freely and liberally to subdue the fever, or prevent its malignity. Captain Cook, in the fever which appeared in his ship after leaving Batavia*, attended to cleanliness and ventilation. The distemper, however, still increased, and became more malignant. The same means,

* Page 123.

means, as appears by the Journals, have been assiduously employed in several of the India ships: but, however necessary these precautions, when the bark was withheld sickness and mortality too frequently became general.

C H A P. VI.

OF THE EMBARKATION OF RECRUITS AND TROOPS, AND THE MEANS OF PRESERVING THEIR HEALTH IN THE VOYAGE, AND ON THEIR ARRIVAL IN INDIA.

THE recruits sent annually out by the East India Company are distributed in many ships; and, therefore, are seldom crowded. From inattention, however, to several necessary regulations, they often experience sickness during the voyage.

But the diseases, which have occurred amongst the company's recruits, are trivial when

when compared with the mortality which has often happened to his Majesty's troops from injudicious arrangement in their embarkation, from mistakes and neglect in the voyage, and from mismanagement on their arrival in India. It therefore appears necessary to offer a few remarks on this subject; which is not only interesting to the cause of humanity, but in which the flourishing state of a great commercial Company, and of even the British Nation is materially involved.

The first circumstance to be attended to in the embarkation of soldiers, is to commence the voyage at a proper time of the year, so that they may be landed at their place of destination in the most healthy season.

Another circumstance of equal importance is not to embark the troops, till such time as the ships are ready to sail. For if troops be sent out in transports the men suffer from unnecessary confinement: or if they and the recruits be ordered on board the company's ships before the loading be completed, they not only suffer by confinement, but, having no proper place for their hammocks, are obliged to lie upon
chefts,

chests, or on the cables in their dirty cloths. By these means they become feverish; and, under the insidious appearance of rheumatism or a cold, contagion is often generated.

As soon as the recruits or soldiers are embarked, besides proper bedding, each man should be furnished with an uniform consisting of a red jacket; two flannel waistcoats; two pair of flannel drawers; two pair of worsted stockings; two pair of ticking trowsers, to buckle at the ankles; two or three shirts; a high crowned hat; a black stock; and two pair of shoes*.

On their first setting out, their flannel apparel should be wore under their jackets and trowsers; and, when they come into hot weather, the flannel waistcoat, the drawers and stockings should be laid aside, and carefully preserved clean till the ship enters the colder latitudes off the Cape; when they will again be of great use in preventing the scurvy.

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* See an excellent treatise by an officer, (which has been already quoted, in which the greatest number of these articles are recommended) intitled, *Remarks on the causes of diseases amongst new raised troops, &c.*

The recruits and troops should be under the command of their own military officers; who should divide them into proper messes under the controul of a serjeant, who should be responsible for their regularity in living; for their clothes; and for the cleanliness of their persons, births, and hammocks.

The recruits and soldiers should be employed upon deck in fair weather, in learning some parts of military discipline, or in doing the duty of the ship. But in wet weather, unless on some extraordinary occasions, they should be totally exempted from such duty, as the ill effects of moisture will more than counterbalance the advantages, which may arise from the exercise.

With respect to the prevention of diseases amongst recruits, and military troops, both at sea and the different islands of refreshment, the officers should cause the same regulations and precautions to be carried into execution, which have already been recommended for securing the health of the ship's company.

When they arrive in India they should at first be quartered in barracks, where it
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is easy to prevent them from falling into irregularities, and strolling out and exposing themselves to the dangerous effects of night air.

Until they be accustomed to the country, and their health established, field officers should be careful not to fatigue them during the heat of the sun, especially about mid-day. But when they are inured to the climate, they should be gradually brought to bear every hardship, to which they will be afterwards exposed in the exercise of their profession.

C H A P. VII.

OF THE NECESSITY OF RESPONSIBILITY
BEING ATTACHED TO THE OFFICES OF
COMMANDERS AS THE MOST CERTAIN
MEANS OF PREVENTING THE DISEASES
OF SEAMEN AND SOLDIERS IN HOT
CLIMATES.

THE prevention of the diseases of seamen and foldiers, as it must always depend upon discipline, becomes, in a peculiar manner, the province of the officers. It is therefore much to be wished, as the means of attaining this desirable end are now so well known, that regulations for preserving health were given as *instructions*, to be followed with unremitting perseverance; and not to be left to the *discretion* of officers.

In the service of Government and of the East India Company every thing seems to be well regulated, and precautions taken against mismanagement, except so far as concern the men. For neglect of duty; waste of stores; the loss of a ship, or of her
M m passage;

passage ; and for matters of less consequence, a court martial is very justly instituted : but the health of the men, on which the preservation of ships, the fate of battles, nay even the very existence of the nation depend, has never been thought worthy of strict inquiry !

If the Commanders of ships, the Admirals, Generals and Officers of our fleets and armies were made responsible for any neglect in carrying proper *regulations of health* into execution ; and, should sickness prevail, if an *inquiry* were made to ascertain whether it proceeded from inevitable causes, or from neglect and mismanagement, many advantages would accrue. The finances of the nation would not be so unprofitably wasted ; and, what is of more consequence, much human misery would be prevented. Our ships of war would not so often resemble floating funerals ; and our naval and military hospitals pest-houses. Our seamen and soldiers, instead of dying almost unpitied in a sick-bed, would add to the honour and aggrandizement of their country.

A P P E N D I X.

FROM the account which has been already given of diseases as they occur at sea, and in different harbours of India, it will appear how little occasion there is for a numerous catalogue of medicines, and how ridiculous it is to fit up the *medicine-chest* with all the empty shew of an Apothecary's shop.

A certain fixed sum being allowed for medicines, no insignificant articles should be admitted; nor such as spoil by the heat and moisture of the climate. Of the former kinds are many of the ointments; the distilled waters; and syrups: of the latter almost all the conserves; electuaries; and confections*.

M m 2

The

* Of these compositions, it will be proper to admit some of the following into the medicine-chest: viz. conserve of roses; electuary of fenna; and aromatic confection, as they are not only convenient for compounding, but for covering the taste of active medicines. If they be made of a thick

con^d

The greatest part of the tinctures and wines is exceptionable, as the articles, on which their virtues depend, may be exhibited in a cheaper and a more certain form.

Among the class of purgatives, many are too drastic for general use; such as the preparations of scammony, colocynth, and aloes. Others do not keep sound for any length of time; such as jalap. A very inconsiderable quantity of these should be therefore carried out, which will make ample allowance for more lenient purgatives, such as Glauber, Epsom, and Rochelle salts; phosphorated soda; crystals of tartar; castor oil; fenna and rhubarb.

The following is a correct list of the quantity of the principal medicines, which was found barely sufficient for the crew of the Talbot, in her voyage to Madras and China, in 1771 and 1772. But although the allowance was great, when com-

consistence, and covered with paper, moistened with brandy, they will keep at sea without fermenting or becoming mouldy. Instead of the *Confectio Opiata*, which, when recent, is an excellent medicine, the powder, on which its virtues depend, will keep sound in a bottle well corked during the longest voyage.

compared with the same articles in many other ships, yet a double or triple quantity of the bark, and some of the other capital remedies, will be indispensably necessary in the more unhealthy voyages to Bengal and Bencoolen.

Peruvian Bark, carefully chosen,	}	40 lb.
in fine powder, bottled, corked		
and sealed - - - - -		
Opium - - - - -		8 oz.
Tincture of Opium - - -		2 lb.
Calomel - - - - -		1 lb.
Quicksilver (besides the ointment	}	2 lb.
carried from England) - -		
Glauber's Salt * - - -		28 lb.
Epſom Salt †, in jars - -		28 lb.
Rochelle Salt ‡ - - -		4 lb.
Soluble Tartar § - - -		2 lb.
Emetic Tartar ¶ - - -		4 oz.
Glaſs of antimony for making	}	1 oz.
antimonial wine - - -		

M m 3

Ipeca-

* Natron Vitriolatum.

† Magnesia Vitriolata

‡ Natron Tartarifatum.

§ Kali Tartarifatum.

¶ Antimonium Tartarifatum. Ph. Lond.

|| Antimonium Vitrificatum.

Ipecacuanha in powder bottled, corked and sealed - - -	}	3 lb.
Crystals of Tartar; and Crude Tartar for making Tartar Ale	}	1 cwt.
Strong Spirit of Vitriol, for making diluted Vitriolic Acid - - -	}	2 lb.
Salt of Tartar* - - - -		2 lb.
Blistering Plaster - - - -		3 lb.

The above list is not intended to exhibit all the variety of the medicine-chest. Other articles may be required for surgical cases; and for some diseases which occur sporadically. But if the Surgeon be supplied sufficiently with the above medicines, together with a proper regimen for the sick, he will find it no difficult matter to remove almost every disease, to which Europeans are peculiarly subject in voyages to the East Indies.

Having premised these observations on the medicines, which are judged indispensably necessary in voyages to India, it remains to present the reader with the particular prescriptions; which, to prevent unnecessary repetitions, were reserved for this place.

No

* Kali præparatum.

No regular arrangement has been observed in the *formulæ medicamentorum*, as it seemed most convenient to number each prescription in the order, in which it first occurred in the second part of this essay.

FORMULÆ MEDICAMENTORUM.

Nº. I. R. Antimonii tartarifati granum,
 Magnesiæ albæ grana undecim ; misce *.
 Capiatur à granis sex ad grana duodecim.

Nº. II. R. Antimonii tartarifati à granis
 duobus ad grana quatuor,
 Mannæ unciam,
 Aquæ puræ bullientis uncias octo ; misce.
 Capiantur unum vel duo cochlearia singulis semihoris.

M m 4

Nº. III.

* As this powder kept well at sea, one dram of the antimonial preparation and eleven drams of magnesia were rubbed into subtile powder, and preserved for use.

N^o. III. R. Antimonii tartarifati grana
duo,
Magnesiæ vitriolatæ unciam,
Aquæ puræ bullientis uncias
septem,
Succi limonis semunciam,
Sacchari albi drachmas tres;
misce.
Capiantur una vel duæ uncia
singulis semihoris.

N^o. IV. R. Extracti opii grana duo,
Calomelanos grana decem,
Conservæ rosæ quantum satis
sit; misce, et forma in pilu-
las quatuor.
Capiatur una pro re natâ.

N^o. V. R. Tamarindorum unciam,
Aquæ puræ uncias novem;
Coque per sextam horæ partem,
et liquori colato adde
Magnesiæ vitriolatæ unciam
cum semisse.
Capiatur partitis vicibus.

N^o. VI. R. Tamarindorum unciam,
CrySTALLORUM tartari scrupu-
lum,
Aquæ

Aquæ puræ uncias duodecim :
Coque per sextam horæ partem,
et liquori ferventi adde

Foliorum fennæ semunciam,
Mannæ unciam.

Infunde per horas duas, et leni-
ter exprimendo cola.

Capiatur partitis vicibus.

Nº. VII. R. Pulveris corticis peruviani un-
ciam,

Aquæ cinnamomi bullientis
uncias decem :

Infunde per horas quatuor ; de-
inde cum expressione cola.

Capiantur uncix duæ vel tres
singulis semihoris,

Nº. VIII. R. Amygdalarum dulcium de-
corticatarum,

Sacchari purificati, singulo-
rum semunciam ;

benè tritis admisce paulatim

Infusi corticis peruviani (ut
supra Nº. 7.) uncias duode-
cim,

Capi-

Capiantur uncix duæ vel tres, singulis horis, si ventriculus ferre potest.

Nº. IX. R. Pulveris corticis peruviani,
Conservæ rosæ, singulorum unciam,
Aquæ puræ uncias duodecim :
Coque per sextam horæ partem,
et liquori colato adde
Acidi vitriolici diluti drachmam,
Spiritus vini gallici unciam ;
misce.
Capiantur uncix duæ frequenter.

Nº. X. R. Pulveris corticis peruviani unciam cum semisse,
Aquæ puræ uncias quindecim :
Coque lento igne per sextam horæ partem, sub finem injiciens
Gummi arabici drachmas tres :
liquori calenti adde
Tincturæ corticis peruviani compositæ uncias duas ; vel

Tinc.

Tincturæ colombæ, uncias
duas ; commisce.

Capiantur unciaæ duæ vel tres
singulis horis.

Nº. XI. R. Extracti corticis peruviani
americani drachmas duas,
Decocti corticis peruviani fer-
ventis Ph. L. uncias unde-
cim ; solve, et adde
Tincturæ corticis peruviani
compositæ unciam,
Sacchari purificati drachmas
sex ; misce.

Capiantur unciaæ duæ vel tres
singulis fefquihoris.

Nº. XII. R. Pulveris corticis peruviani un-
ciam,
Radiciſ ſerpentariæ virginianæ
drachmas duas,
Aquæ puræ uncias duodecim :
Coque per ſextam horæ partem
in vaſe clauſo, et ferventi li-
quori colato adde
Tincturæ corticis peruviani
compoſitæ uncias duas,
Sac-

Sacchari purificati drachmas
sex ; misce.

Capiantur duæ unciaë secundâ
quaqua horâ, addendo si perferre
possit ventriculus,

Pulveris corticis peruviani à
drachmæ dimidio ad drach-
mam.

Nº. XIII, R. Decocti corticis peruviani
uncias decem,

Tincturæ corticis peruviani
uncias duas,

Spiritus ammoniæ compositi
drachmas tres,

Sacchari purificati semunciam;
adde, pro re natâ,

Tincturæ opii guttas viginti;
misce.

Capiantur duæ unciaë singulis
sesquihoris, addendo, alternis vi-
cibus,

Pulveris corticis peruviani
drachmam.

Nº.

N^o. XIV. R. Decocti corticis peruviani cum
serpentariâ, (ut N^o. 12.)
uncias decem,
Tincturæ lavendulæ semun-
ciam,
Tincturæ opii guttas viginti;
misce.
Capiantur duæ vel tres unciaë,
singulis horis.

N^o. XV. R. Aquæ cinnamomi unciam
cum semisse,
Confectionis aromaticæ,
Spiritus ætherei vitriolici, sin-
gulorum drachmam,
Tincturæ opii guttas viginti,
Sacchari purificati drachmam;
misce, ut fiat haustus.

N^o. XVI. R. Hydragryri purificati drach-
mam,
Mucilaginis gummi arabici
drachmas duas;
benè terantur donec globuli vi-
sum fugerint, et adde
Pulveris scillæ exficcatæ drach-
mæ dimidium,

Pulv-

Pulveris glycyrrhizæ quantum
fatis sit ut fiant pilulæ nu-
mero sexaginta.

Capiantur quatuor, singulis
noctibus, horâ decubitûs.

N^o. XVII. R. Florum chamæmeli femun-
ciam,

Kali præparati drachmas duas,
Aquæ bullientis uncias octo :
Infunde per quatuor horas, et
cola.

Capiantur duæ vel tres unciaë ter
de die.

N^o. XVIII. R. Pulveris ipecacuanhæ grana
decem,

Antimonii tartarifati grana
duo ; misce.

Capiatur à granis sex ad grana
duodecim, singulis horis, donec
superveniat vomitus aut catharsis.

N^o. XIX. R. Decocti tamarindorum fer-
ventis uncias octo,

Antimonii tartarifati à granis
duobus ad grana quatuor ;
misce.

Capiatur uncia singulis femi-
horis,

N^o.

Nº. XX. R. Magnesiæ vitriolatæ ab uncia
ad unciam cum semisse,
Aquæ ferventis uncias septem,
* Succì limonis semunciam,
Spiritus vini gallici,
Sacchari purificati, singulorum
drachmas tres; misce.

Capiatur partitis vicibus.

Nº. XXI. R. Olei ricini unciam cum
semisse,
Spiritus vini gallici; vel
Tincturæ cardamomi compo-
sitæ semunciam; misce.

Capiatur partitis vicibus, phialâ
prius agitâtâ.

Nº. XXII. R. Pulveris ipecacuanhæ à granis
octo ad grana duodecim,
Antimonii Tartarifati a grano
ad grana duo,
Conservæ rosæ quantum satis
sit ut fiant pilulæ numero
octo.

Capiantur duæ, tertiâ vel quartâ
quaque horâ.

Nº. XXIII. R. Opii purificati in pulverem
triti,

Pulv.

* Vel CrySTALLORUM Tartari quantum satis sit.

Pulveris ipecacuanhæ, singu-
lorum drachmam,

Conservæ rosæ quantum satis
fit ut fiant pilulæ numero
sexaginta.

Capiantur, pro re natâ, una, duæ,
vel tres, horâ decubitûs.

Nº.XXIV.R. Calomelanos grana decem,
Antimonii tartarifati granum,
Conservæ rosæ quantum satis
fit ut fiant pilulæ duæ.

Capiatur una pro re natâ.

Nº.XXV.R. Pulveris corticis peruviani
unciam,
Cascarillæ semunciam,
Aquæ puræ libram :
Coque per sextam horæ partem,
sub finem injiciens
Corticis cinnamomi drach-
mam:
ferventi liquori colato adde
Gummi arabici drachmas
duas,
Tincturæ corticis peruviani
uncias duas ; misce.

Capi-

Capiantur duæ vel tres uncix
secundâ quaquâ horâ, adden-
do, pro rê natâ, aliquot guttas
tincturæ opii.

Nº. XXVI. R. Amyli triti drachmas sex,
Aquæ puræ libras tres :
Coque ad libras duas, et adde
sub finem coctionis
Corticis cinnamomi drach-
mam,
Gummi arabici semunciam;
cola.
Capiatur pro potu communi.

Nº. XXVII. R. Pulveris colombæ unciam,
Corticis aurantiorum ficcati
semunciam,
Corticis cinnamomi triti
drachmas duas,
Spiritus vini gallici uncias
duas,
Aquæ bullientis uncias sex :
macera per quatuor horas, et
cola.
Capiantur duæ uncix, bis vel
ter de die.

Nº. XXVIII. R. Hydrargyri purificati
drachmam,

Gummi arabici drachmas
tres,

Sacchari albi, drachmam :
in mortario vitreo conterantur
donec hydrargyrus visum fu-
gerit ; deinde paulatim ad-
misce

Aquæ puræ,
cinnamomi, singula-
rum uncias quatuor,

Sacchari albi drachmas tres.
Capiantur unum vel duo
cochlearia, singulis noctibus,
phialâ prius agitâtâ.

Nº. XXIX. R. Gummi guaiaci scrupula
duo,

Mucilaginis gummi arabici
drachmam ;

benê tritis paulatim admisce

Aquæ puræ unciam,

Pulveris jalapii grana quin-
que,

Syrupi simplicis drachmam ;
misce.

Fiat haustus alvô astrictâ fu-
mendus.

Nº.

Nº. XXX. R. Camphoræ drachmas duas,
Olei olivarum unciam,
Spiritus ammoniæ drachmas
duas,
Tincturæ cantharidum
drachmas tres ; misce.
Fiat linimentum.

TABLE I. A Specimen of the REGISTER FOR TRACING THE PROGRESS OF
FEBRILE INFECTION IN NEWCASTLE.—See Page 154, 156.

No.	Names.	Street.	Date of Admission	Whence Infected.	Infection communicated to
1	Ralph Symonton	Behind Castle	1786.	} — — —	} Surtees, No. 4.
2	Robert Symonton		September 6		
3	Ann Symonton		— — — 7		
4	Eleanor Surtees	Back Row	— — — 27	Symonton, No. 1.	} Donnifon, No. 9. } Ritchie, No. 10, 11, 12, 13.
5	Elizabeth Pratt	St. Nicholas Church Yard	October 9		
6	Mary Pratt		— — — 12		
7	Peter Mafon		— — — 12		
8	Ann Pratt		— — — 12		
9	Sarah Donnifon	Back Row	— — — 12	Surtees, No. 4.	Scarrow, No. 17.
10	Margaret Ritchie	Ditto	— — — 16	} Surtees, No. 4.	} Gill, No. 14. } Campbell, No. 16. } Cornforth, No. 21.
11	George Ritchie		— — — 17		
12	Elizabeth Ritchie		— — — 17		
13	William Ritchie	Ditto	— — — 22	Ritchie, No. 10.	} Bayne, No. 26. } Slater, No. 32. } Hodgson, No. 36.
14	Isable Gill		— — — 23		
15	Thomas Sharp	Queen Street	— — — 23	— — —	} Campbell, No. 22. } Her Daughter, No. 30. &c. &c.
16	William Campbell	Back Row	— — — 24	Ritchie, No. 10.	
17	Elizabeth Scarrow	Queen Street &c. &c.	— — — 26 &c. &c.	Donnifon, No. 9. &c. &c.	

TABLE II. The Monthly Returns of the Diseases of the Patients on Board the Ship ———, in a Voyage to ———, in 179 , and in her Return to England in 179 . See Page 500—502.

D I S E A S E S.	179 Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	179 January	Feb.	March	April	May	June	July	August	Sept.	Total
CL. I. <i>Febrile Diseases.</i>																					
Remittent Fever	4	3	8	3	8	6		10	7	8	1				2	2	3				65
Hepatitis																					
Dysentery																					
<i>Et c. Et c.</i>																					
CL. II. <i>Nervous Diseases.</i>																					
Apoplexy																					
Tetanus																					
Colic																					
Cholera																					
<i>Et c. Et c.</i>																					
CL. III. <i>Cachectical Diseases.</i>																					
Dropfy																					
Venereal Infection																					
Scurvy																					
<i>Et c. Et c.</i>																					
CL. IV. <i>Local Diseases.</i>																					
Suppression of Urine																					
<i>Et c. Et c.</i>																					
TOTAL.																					
LATITUDES.	47.36N 44.28N	43.44N 42.1N	7 S 26.46 S	27.59 S 37.15 S	35.24 S 44 S	3. 29N 12.36N	10.58N 5. 38N	1. 44 N 12.58N	12.13N 21.48N	Macao.	Macao.	Macao.	Macao.	18. 8N 20N	6. 56 S 25.17 S	26.13 S 35 47 S	35.22 S 13.2 S	25 N 25.27N	27. 9N 49 21N	Channel	

† This Table to front Table I. Page 564.

TABLE III. General Return of the Patients on Board the Ship —, in a Voyage to — in 179 , and in her return to England, in 179 .—See page 500—502.

DISEASES.	Number.	Cured.	Sent to the Hospital.	Died.
<i>CL. I. Febrile Diseases.</i>				
Remittent Fever	65	64	0	1
Intermittent Fever				
Continued Fever				
Hepatitis				
Dysentery				
&c. &c.				
<i>CL. II. Nervous Diseases.</i>				
Apoplexy				
Tetanus				
Colic				
Cholera				
&c. &c.				
<i>CL. III. Cachectical Diseases.</i>				
Dropfy				
Venereal Infection				
Scurvy				
&c. &c.				
<i>CL. IV. Local Diseases.</i>				
Suppression of Urine				
&c. &c.				
Total.				

EXPLANATION OF THE TABLES.

In the first Table, containing a specimen of the register for tracing febrile contagion; the brace connects the number in a family ill of the fever at one time, and the number to whom the infection has been communicated.

The second Table, intended to comprehend the MONTHLY RETURNS, is formed from the medical day-book*, by placing the number of different diseases respectively in the column allotted for each month. In illustration, the remittent fever is placed in the columns, in the order in which it appeared on board the Talbot. The bottom line is intended to contain the highest and lowest latitude in each month, in the order in which either may occur. This part of the Table is also illustrated by inserting the highest and lowest latitude the Talbot was in during each month.

The third Table, comprehending the GENERAL RETURN, is easily formed from the second Table, by placing the sum total of each disease, in that Table, in the second column of this; and in the other columns the manner in which the diseases terminated, or in which the patients were discharged.

* See page 501.

E R R A T A.

Page 10, line 3, for *is*, read *are*.—p. 41, l. 5, *which only*, r. *which, only*.—p. 95, l. 5, *first chapter*, r. *former chapters*.—p. 100, l. 15, *intollerably*, r. *intolerably*, and in some other places do the same.—p. 103, l. 8, *amusemenes*, r. *amusements*.—ibid, l. 15, *unsupportably*, r. *insupportably*.—p. 105, in the note, l. 9, *abdomin*, r. *abdomen*.—ibid, l. 2, from the bottom, *fwweets*, r. *fwears*.—p. 109, l. 7, dele comma after *accompanied*.—p. 113, l. 7, *forms*, r. *form*.—p. 127, l. 2, from the bottom, *is*, r. *are*.—p. 131 l. 4, from the bottom, *their*, r. *there*.—p. 135, l. 18, *is*, r. *are*.—p. 136, last l. *vechicle*, r. *vehicle*.—p. 137, l. 1, *palinguin*, r. *palanquin*.—p. 142, for the title to Chap. I. which is omitted, see Table of Contents.—p. 143, l. 22, *any trival ailment which may occur*, r. *any ailment rendered trivial which may occur*.—p. 145, l. 14, *off*, r. *of*.—p. 166, l. 19, *other two*, r. *two other*.—p. 171, l. 9, *ideopathic*, r. *idiopathic*.—p. 173, l. 12, after *either* add *two*.—p. 174, l. 19, *accidulated*, r. *acidulated*.—p. 181, l. 15, before *cathartic*, r. *Glauber's*.—p. 187, l. 17, *antiseptic*, r. *antiseptic*.—p. 194, l. 21, *pediluvium*, r. *pediluvium*.—p. 201, l. 11, *run*, r. *ran*.—p. 234, l. 1, *some*, r. *a little*.—p. 273, l. 17, *sometimes*, r. *some time*.—p. 274, l. 9, *having*, r. *be having*.—p. 294, l. 7, *pustles*, r. *pustules*.—p. 327, l. 6, *crystalls*, r. *crystals*.—p. 341, note, l. 8, *dysentric* r. *dysenteric*.—p. 407, note, l. 23, *loose*, r. *lose*.—p. 430, l. 16, *deluting*, r. *diluting*.—p. 437, l. 2, *hydrophobca*, r. *hydrophobia*.—p. 449, last line, a comma after *stand* instead of after *nor*.—p. 451, l. 15, *Achilles*, r. *Achillis*.—p. 462, l. 1, *appling*, r. *applying*.—p. 486, note, l. 4, *practice*, r. *practice*.—p. 508, l. 13, after *and* dele comma.—p. 532, l. 11, *voyage*, r. *voyages*.—p. 537, l. 3, from the bottom, *inoxious*, r. *innoxious*.—p. 542, l. 16, *wore*, r. *worn*.

